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THE

EDINBURGH

JOURNAL OF MEDICAL SCIENCE.

THE

EDINBURGH

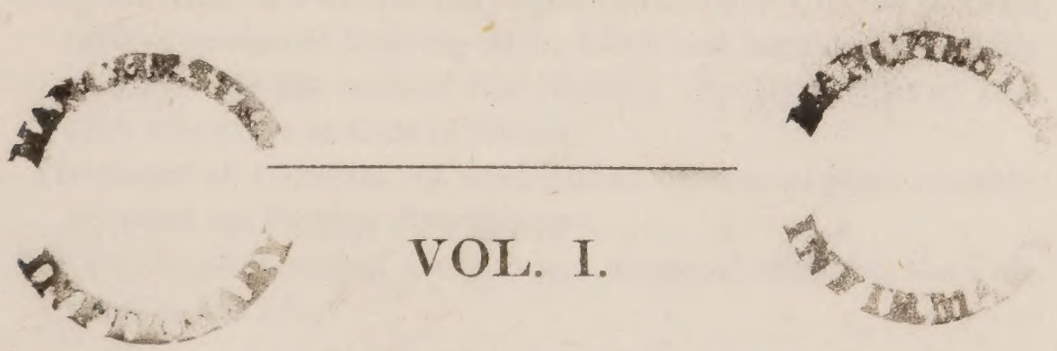
JOURNAL OF MEDICAL SCIENCE,

EXHIBITING A COMPENDIOUS VIEW OF THE

PROGRESSIVE IMPROVEMENTS AND DISCOVERIES

OCCURRING IN

PRACTICAL MEDICINE, PRACTICAL SURGERY, MIDWIFERY, ANATOMY (HUMAN, COMPARATIVE, MORBID), PHYSIOLOGY (HUMAN, COMPARATIVE), PATHOLOGY (HUMAN, COMPARATIVE), CHEMISTRY, PHARMACY, BOTANY, MATERIA MEDICA, AND MEDICAL JURISPRUDENCE.



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THE

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PART I.

ORIGINAL PAPERS,

AND COMMUNICATIONS FROM VARIOUS CHANNELS.

I. PRACTICE OF MEDICINE.

ART. I.—*Observations on the Modern Doctrines of Fever.* By JOSEPH BROWN, M. D., Sunderland.

HE must be a bold man who can approach the subject of Fever without a feeling a good deal akin to *Acres*. The "giants in the earth" of the olden time, and striplings of modern days, have equally grappled with this hydra, and all, as it would appear, have been worsted in the conflict. To mention the physicians who have employed distinguished talents and unwearied industry on this topic, would be to furnish a muster roll of the great names in physic; and the laurels they have here reaped have been of all the most evanescent; for the doctrine of yesterday has never been that of to-day; and I cannot help suspecting, that that, or rather those of to-day, will not prove much more durable than their predecessors. It is too soon to cry "εὕρηκα." The problem is not yet solved; and, to prove this, may be at least a check on dogmatism and self-conceit; and there has been a disposition, of late years, among certain writers on this subject, to speak with excessive contumely of those who have gone before them. Had this tone been warranted by any thing they themselves have presented to the public; by a cogency of reasoning

which demonstrated at once the truth of their doctrines; or by tabular returns, shewing the most salutary results from their practice,—it might have been tolerated; but, to distinguish between real knowledge and what is merely supposititious is not always easy. Let us then endeavour to ascertain their boundaries in the present instance, and to determine how much the labours of late years have added to our knowledge of this intricate subject.

Whether the difficulty be indissolubly connected with the intricacy that has just been mentioned, or arises only from the manner in which the subject has been treated, may be matter of doubt; but it is not easy to express one's opinions on fever, in a way which shall obviate all ambiguity. I wish my observations to be applied to the epidemic, or (as some term it, and I believe correctly) the infectious fever of this country; and to fever generally, only so far as the general subject is unavoidably discussed, whilst so important a branch is under consideration. I am compelled to avoid the word typhus, from finding that very different ideas are associated with it. Whilst some practitioners employ it to designate the genus of the fever in question, without any reference to the intensity of the symptoms; from others we hear such language as the following:—"He has a great deal of fever, and may soon fall into a typhoid state;" as if the term did not comprise the whole series of the phenomena of a disease, but only some portion of that series. It is to be regretted that we have no word in general use, except that of common continued fever, which should express the former of these acceptations of typhus, and at the same time be less appalling to the public than that term notoriously is.

The synonymes of this disease, in English, are, Typhus, Synochus, Nervous, Jail, and Hospital Fever. In France, its different grades are denominated, in the "Nosographie philosophique" of Pinel, "Fiévre adynamique et ataxique;" whilst it constitutes, if I mistake not, one of the thousand and one forms of the Gastro-enterite of M. Broussais, and his disciples. It is the product of the temperate or colder, as bilious remittent is of the warmer, portion of Europe, and the western continent. It never but once fell to my lot to witness it in the south of Europe, and that was on the frontier of Portugal, in 1812, during a winter, for that climate, unusually cold and damp, and immediately after the Duke of Wellington's army had suffered, in its retreat from Burgos, all those hardships, privations, and depressing passions which are known to favour its generation in this country. In the north of France, I have seen much of it; never in the south. But, if I were to express an opinion as to its comparative frequency, I should say that it prevailed more in *this*, than in any country I have chanced to visit. Whether this

greater prevalence here, supposing it to exist, may arise from some peculiarities in our soil and climate, or from the commercial and manufacturing pursuits of the inhabitants of this island, condensing our population in large towns, it may not be easy to determine. From having seen it frequently prevailing in the country, and in small villages, I feel considerably disposed to adopt the former solution.

What is this fever?—Of what does it essentially consist?—Or what, in the language of the schools, is its *proximate cause?*—an unphilosophical term I grant, but one of which the meaning is sufficiently understood. Answers are ready from various quarters. It is inflammation of the brain. It is inflammation of any organ, or of sundry organs. It is inflammation of the mucous membrane of the stomach and intestines. It is congestion.—Is it really any of these things? It will be observed, that these hypotheses contemplate the state of the vascular system only. Let any person observe the giddiness of the head, the tottering gait, the ringing of the ears, the incapacity of attention, which so often usher in fever, at the time the vascular system is little or not at all disturbed; the mental hallucinations which accompany its whole course; the low muttering delirium, the subsultus tendinum, the picking of the bed clothes, which mark its close, and say whether the sensorial is not at least as much affected as the vascular system. The theories of Hoffman and Cullen (for every part of which I am by no means disposed to break a lance), in giving the priority to the sensorial affection, were certainly more consonant to the phenomena of the disease than the modern hypotheses. Had these possessed over them all the advantages which a comparatively perfect does over an infant science, which the Lavoisierian chemical doctrines do over Stahl, for instance, yet would they have deserved respect, as furnishing the best explanation of phenomena that the existing state of science admitted. I allow that this explanation is not correct; but must add, in the words of a learned and ingenious writer, that "these observations have not fallen prostrate before any fabric of more substantial materials, or more elegant architecture." This marked affection of the sensorium seems to have given rise to the hypothesis which identifies Fever with Phrenitis. With respect to this, I will ask these authors, whether ague, a paroxysm of which presents all the symptoms of fever exquisitely formed, is a quotidian, a tertian, or quartan inflammation of the brain, recurring daily or every second or third day, at the same hour, then ceasing spontaneously, but continuing to recur, till prevented by the administration of bark or arsenic, those powerfully *antiphlogistic* remedies *.

* There is a considerable coincidence between the line of argument here adopted, and that of the reviewer of M. Montfalcan's work, "Histoire des

Under the bark and wine practice, at the time it flourished in its full vigour, must not the disease have proved uniformly fatal, were Dr Clutterbuck's supposition correct? It is notorious that it was not so: Nay, it is notorious that, in some epidemics, it was eminently successful; and I recollect a physician *, who owed an almost unparalleled provincial reputation to the success with which he pursued it in Newcastle upon Tyne, and its neighbourhood. Nothing, *perhaps*, would shew so clearly how much or how *little* influence we possess over the disease, as tabular returns from hospitals, of the proportionate mortality under the practice mentioned, to be compared with similar returns prepared at the present day. I question much whether the records of any hospital have been so accurately kept as to furnish information of this sort. Had the medical department of the army been conducted forty years ago, as it is at present, *there* the requisite information might have been obtained. But the notorious fact, which all must admit, that numbers, that thousands, recovered from the disease under a plan of treatment which would have been positively poisonous in Phrenitis, is sufficient to disprove the identity I am controverting. A similar inference may be deduced from the recovery of numbers of the poor Irish in 1816, without any medical treatment whatever. Could an individual suffer under inflammation of the brain, unbled, uncupped, unleeched, unpurged, for a fortnight, three weeks, or a month, without disorganization of the organ which must have been destructive of life? Of the modes of disease of the sensorium we know but little. It may be capable of many, of which we have no conception. The delicacy of the structure of the brain, and the obscurity of the mode in which its wondrous functions are performed,—placed, probably for ever, beyond human ken,—render it incredible that we should have any thing approaching to an accurate knowledge of its diseased conditions. A state of doubt is one of which the human mind is exceedingly impatient. Hence physicians have been led to seek, in parts of our frame better known to them, an explanation of the diseases of this obscure and intricate structure. The sanguineous and digestive systems have generally been selected

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Marais," &c. in the October Number of the Medico-Chirurgical Review. I have only to say, that every word of this article was written before I had seen that Number of the very popular periodical in question. Indeed it seems superfluous to offer any explanation of a coincidence in a train of reasoning which must present itself to every man of common sense, whose mental vision is not obscured by a prejudice in favour of the local origin of fever, and which assails a point, of the weakness of which the advocates of such origin were fully aware. The garrison had *there* thrown up breast-works before the attack commenced. But they will be of no avail: the place is not tenable.

* The late Sir James Clark.

for this purpose. Dr Clutterbuck has chosen the former. It would have been quite as philosophical to have reversed the order with Cullen, and supposed the vascular the effect of the cerebral derangement. Many and extraordinary sequelæ of this fever have we witnessed: abscesses in the meatus auditorius; boils in various parts of the body; swollen limbs in individuals of both sexes, strikingly resembling phlegmasia dolens, and remediable by the means most successful in that disorder, leeches and blisters to the inguinal region. I attended two young men, relatives, ill of Fever in the same house. In both, matter formed under the periosteum of the tibiæ at the commencement of convalescence. But no sequelæ have been so general as a peculiarly enfeebled and irritable state of mind,—a state which premature occupation in business, or disappointment in pursuits, will readily ripen into insanity. I have seen, indeed, mental derangement, requiring temporary seclusion, produced during convalescence by causes of this kind.

The forms of delirium have not been so much attended to as they merit. There was a considerable peculiarity in that which accompanied many of the cases of bilious remittent in Spain and Portugal. It bore a greater resemblance to insanity than to the ordinary delirium of fever. It did not consist of a crowd of unconnected hallucinations, or display itself in vague mutterings, but it seemed as though

> "One master" feeling "in the breast
> Like Aaron's serpent swallowed up the rest;"

and this feeling wore a character of gloom and despondency, impelling the unhappy victim almost irresistibly to suicide. An army physician of considerable talents, and extensive information, whom I attended in fever, perished in this melancholy manner. The state of his mind was known, every precaution had been taken, and the greatest watchfulness had been enjoined the attendants. But in going to visit him one evening, I found him weltering in his gore. He had opened the femoral artery, just below Poupart's ligament, with a lancet, which he had contrived to conceal under his pillow. Never but once have I observed this melancholy form of delirium in fever in this country, and that was during the present autumn *, an unusually warm one; and in the case, which terminated fatally, a deep bilious suffusion took place over the whole body some days before death, and remained to the close. The coincidence is certainly striking. Much of the reasoning which has already been employed, is applicable to every doctrine which regards fever as always symptomatic of some local inflammation. Is

* That of 1825.

ague an intermittent inflammation of any organ? Do inflammations of important organs, so severe as to reduce the patient to a state of helplessness, subside spontaneously in a climate like ours? Are they remediable by bark and wine? If a medical man were asked, whether he found epidemic fever as tractable by bloodletting, and the ordinary evacuants, as the phlegmasiæ, would he not answer in the negative, and would not the confidence with which this answer was expressed, be pretty nearly in proportion to his practical experience? This is quite a different question from that of the propriety of bloodletting in fever. In the vascular excitement which constitutes a part of that state, inflammations certainly are occasionally formed. They may and ought to be subdued by the lancet; but the primary disease will still hold its course, and mock our efforts. The only fever which I have found speedily and certainly curable by bloodletting, and the ordinary evacuants, is the cauma or synocha, which appears in warm climates, and seems generally to owe its origin to the stimulus of heat. It is quite a different disease from the bilious remittent, or epidemic fever of those countries, which is by no means so tractable. Nevertheless, bleeding moderately and prudently practised, is often highly expedient in the fever of Britain. If inflammations accompany it, bleeding subdues them. It tends to moderate the violence of reaction, and thus lessen the subsequent debility. With it, fevers may be safely conducted to their natural termination,—by it they can *rarely* be cured. I have said can *rarely* be cured, for it is not intended absolutely to deny the possibility of inflicting such a shock on the system by profuse bleeding and other subsidiary measures, as shall break the catenation of fever, especially in its early stage, ere it is fully formed. But I must venture to question the safety of the practice carried to the extent recommended by Dr Jackson; and milder measures of the same nature present no chance of the attainment of the Doctor's object. The reasoning which led the author to this practice is abundantly simple. He strikes a violent blow at the system, with the view of changing its action. But, supposing the action induced not to be that of health (a supposition exceedingly probable), is there not but too much likelihood of its proving worse than the original one? In what condition is a patient to struggle through a protracted fever, after the loss of nearly a hundred ounces of blood? My objections to this practice are not founded on mere *à priori* reasoning, always of doubtful application to so complicated a machine as the human frame, but on information received from an intelligent medical friend, who had an ample opportunity of observing its result in the Isle of Wight, which he assured me was any thing rather than encouraging. Should these remarks meet the eye of the

candid, the disinterested, the veteran Jackson, I trust he will not attribute them to any feeling of personal disrespect. Of a very different cast, indeed, are my feelings towards him. That his old age may be as happy and comfortable, as his character is amiable, and his life has been active and useful, is the prayer of his friend!

The doctrines I have already examined, have a tolerably plausible foundation on an analogy between symptomatic and idiopathic fevers; but that of congestion seems utterly baseless: an assumption purely gratuitous. The term is indefinite; at least it is to be regretted, that the author and advocates of the doctrine have not presented us with any formal definition of it. In ordinary parlance, it signifies a collection of matter as in abscesses. In this sense, it is much used by the French in their phrase "abscès froid, ou par *congestion.*" But its new acceptation, expressive of some peculiar condition of the sanguiferous apparatus, we are left to gather from one writer, who rather incidentally states it to be "an *almost stagnant* accumulation of blood in some part of the venous system *." This is a condition of which it is not very easy to conceive the possibility in a living being, furnished with an apparatus of circulation; but waving this very obvious objection, let us examine the premises whence this very extraordinary inference has been deduced. Symptoms are "the evidences of things unseen." If an individual complain of internal pain and heat, accompanied by pyrexia, by analogy with what he has seen take place on the surface of the body, the nosologist infers the existence of internal inflammation, whilst the site of the pain, and the lesion of a certain function, shew him, by a simple process of reasoning, the organ affected. A mental operation of this kind is performed each time that a practitioner infers, from symptoms, the site and nature of a disease; whilst *post mortem* examinations confirm his inference, or shew him wherein he may have erred. They are the handmaids of semeiology; only as connected with this are they of value,—a fact occasionally forgotten in the present day, especially in a neighbouring kingdom, where Pathology, as it is there termed, is too much regarded as a distinct science. The signs from which we are to infer "an *almost stagnant* accumulation of blood in some part of the venous system," are the following:

"The attacks of the most dangerous forms of the congestive typhus are generally sudden, and marked by an overpowering lassitude; feebleness of the lower limbs; deep pain; giddiness, or sense of weight, in the encephalon; a dingy pallidness of the face; anxious breathing; damp, relaxed or dry withered skin; and those peculiar conditions of temperature which have been no-

* Practical Illustrations on Typhus, &c. By John Armstrong, M D. page 68.

ticed above. The pulse is low, struggling and variable; the stomach irritable; frequently there is an inability from the first to hold up the head; and the mind is more often affected with dulness, apprehension or confusion, than with delirium. The whole appearance of the sick impresses the attentive practitioner with the idea, that the system in general, and the brain in particular, are oppressed by some extraordinary load. Both the manner and look of the patients undergo early and great alterations: sometimes they slowly drawl out their words, or utter them in a hasty and yet imperfect mode, like people who slightly stammer when embarrassed; they not unfrequently seem as if stunned by a blow, half-drunk, or lost in a reverie; and at times have the bewildered aspect of persons suffering under the first shock of an overwhelming misfortune. The eye is occasionally glary and vacant, without redness; but at other times it is heavy, watery, and streaked with blood, as if from intoxication or want of sleep. At the commencement, the pulse is often less altered as to frequency than might reasonably be expected, yet, in general, it becomes very rapid towards the close; the tongue is usually little altered in the first stage, but in the last, it is frequently rough, foul, and brown; the bowels are mostly very torpid in the beginning, and the stools procured dark and scanty; whereas, in the advanced stage, the bowels are generally loose, and the stools copious and involuntary. Eructations are not uncommon at all times, and the epigastric region is often much inflated. On account of the general torpor, the secretions are diminished or suppressed; and, as justly remarked by Dr Robert Jackson, the skin is often in that peculiar state, that, if blisters be applied, either they do not act at all, or so defectively, as to leave an appearance as if the part had been slightly scared by a heated iron. Petechiæ, in general, appear earlier in these than in any other varieties of typhus; and, in the last stage, there are sometimes gangrenous spots on the extremities, oozings of blood from the mouth and nostrils, and hæmorrhage from the bowels *." This, all will allow, is an able graphic sketch, tinged perhaps, we believe undesignedly, with a little colour, not unfavourable to a preconceived hypothesis. Yet, allowing it to be as accurate as possible, we ask whether any man, with a head tolerably logical, would infer from it that there exists an "almost stagnant accumulation" of blood in any part of the venous system. The sensorial symptoms are strongly charged, but after all, they are only sensorial symptoms, and warrant no such conclusion, as that the blood is almost stagnant in the veins and sinuses of the brain. He who examines the symptoms, *seriatim*, will find, that the first that appear denote

* Armstrong, op. citato, pp. 68-69.

the energy of the sensorium diminished by the agency of the febrile poison; those which follow, display a consequent diminution of that of the heart, so that the blood is not propelled freely to the capillaries of the surface; the last sad scene shews the cohesion of the solids and crasis of the blood, equally broken down by this direful malady.

Examinations *post mortem* can furnish no support to this vague hypothesis. Every tiro in anatomy knows how little can be inferred as to the state of the venous system during life, from any accumulation in the veins after death; whilst every tiro in physiology is aware, that the mode in which life is concluded has great influence on the situation of such accumulations. Besides, I myself have seen appearances of this kind, at first regarded as morbid, which, in reality, had resulted from the position of the corpse.

In violation of the well known maxim of Horace, I have expressed my dissent from existing doctrines, without having others more satisfactory to substitute in their place. In the true revolutionary spirit, I have pulled down, without the power of building up. But the precept alluded to, "Si quid novistis rectius, &c." however applicable to ethical, is decidedly bad in physical science. *Here* it is wiser to avow ignorance and persevere in research, than to deceive, or be deceived by premature generalization. In explaining some of the phenomena of fever, we may proceed a little way,—only a very little way; but of any general law or state of the system, on which the whole series depends, we know absolutely nothing. Others, before Broussais and his school, had looked for the source of the evil in the intestinal canal, and had found the alvine discharges dark and offensive. So, in fact, they generally are. How should they be otherwise? In a disease in which every secretion is vitiated, why should those of the intestines be exempt from the common lot. Had the urine been examined with the same scrupulous accuracy, it would have been found equally deviating from the healthy condition. Every speculator seeks in part of the system what exists in the whole; but on this point I cannot express my ideas more clearly than in the language of Dr Fordyce.

"A fever is a disease that affects the whole system; it affects the head, the trunk of the body, and the extremities; it affects the circulation, the absorption, and the nervous system; it affects the skin, the muscular fibres, and the membranes; it affects the body, and affects, likewise, the mind. It is, therefore, a disease of the whole system in every kind of sense. It does not, however, affect the various parts of the system uniformly and equally; but, on the contrary, sometimes one part is much affected in proportion to the affection of another *."

* On Fever,—Dissertation First.

The whole of this passage is strictly true. The last sentence is of peculiar importance. In the part of the system principally affected, epidemics and individual cases of the same epidemic differ. In the sensitive and intellectual, the sensorium and nervous system will be found more affected, than in a different class of persons. That peculiar form of delirium which was observed in the peninsula, was little seen but among the officers of the army,—men of a certain degree of refinement,—the result of education. Fever is at this moment prevailing *, and in most of the cases I have witnessed, the hepatic functions have been prominently affected. Many of the cases have commenced with bilious diarrhœa, many with cholera. That tracing of the rise, progress, and character, of epidemics, which constituted Sydenham's chief title to glory, is perhaps too much neglected in the present day. All now write systems, and every system-monger has his bed of Procrustes, to the dimensions of which each case must be scrupulously adapted. But nature frequently proves as abhorrent of our systems, as she was once supposed to be of a vacuum; and fever will not assume the symptoms of phrenitis, or gastro-enteritis, for the accommodation of Dr Clutterbuck or M. Broussais.

The difficulty which nosologists have experienced in forming a definition of the state of fever, proves how variable its phenomena are. They are sometimes so slightly marked as to be scarcely perceived, at least little thought of by the patient, who pursues his accustomed avocations in spite of them, sometimes for weeks, and finally lies down, perhaps to die in a few days. Cases of this kind have repeatedly fallen under my own observation; and I must add, too, that they have generally proved fatal,—an evidence that early treatment tends to diminish the fatality of the disease. In a disorder thus variable, no general rules for treatment will exempt the practitioner from the task of observation. To be a routinist is to be unsuccessful; and he only who treads in the steps of the wisest physician of this, or perhaps any country, and, "perspecto genio morbi," treats it accordingly, will find a satisfactory result from his practice. Let the physician bear in mind, that he has to deal wih a disease, in which his power to do harm perhaps exceeds his power to do good; which he cannot *cure*, but which, in many cases, he may conduct safely to its natural termination. I may add, too, that his hands have been strengthened by the writers, whose doctrines I have freely, but I hope not uncandidly, criticised. He who pursues their works with an eclectic spirit, will thence derive much valuable information. They have tended, indirectly it is true, to lead us back to the wise opinions and practices of Sydenham, whence Huxham, Pringle, and others

* In the beginning of October 1825.

had led us astray. But on this point I must speak with diffidence; for it is supposable, that the prevailing character of fever during part of the eighteenth century, may have been such as to warrant the practices then adopted; though, on the whole, we are inclined to the conclusion, that they then erred as much in one direction, as we, a few years ago, did in another. Medical men now have either learned, or at least are learning, that human blood ranks in the scale of fluids above ditch water, and are disposed to treat it according to its rank.

Sounder views of the treatment of fever than prevailed some years ago are not confined to members of the medical profession. Much less difficulty is now experienced than heretofore in obtaining proper ventilation and appropriate diet for our patients. To attribute very much of the increased duration of human life, which numerous documents before the public have fully proved, to an amelioration of medical practice directly exerted upon the sick, might be deemed arrogant. Part of this increased duration it will not be considered presumptuous to attribute to such direct influence; but more is probably to be ascribed to correct ideas of the mode of preserving health, which are diffused from the medical profession through the mass of the community. In this indirect influence, a good deal of our utility consists, especially in the present day, when we are surrounded by a reading and inquiring public. This supervision is, on the whole, not insalutary to ourselves. It is true that we are sometimes arraigned before rather incompetent tribunals; and a meritorious practitioner has not unfrequently had occasion to complain of the verdict of "a jury of matrons." But the character of these unpaid courts of justiciary is improving, and we shall have less reason, in future, to tremble for the justice of their decisions.

It cannot, in the present day, be requisite to impress upon the minds of practitioners the general expediency of treating fever, certainly in its early stage, and frequently through its whole course, on antiphlogistic principles. A moderate bleeding, in the first instance, tends to remove any local inflammations, if such exist; and, at all events, lessens the violence of reaction. The old practice, of giving an emetic at the commencement of fever, is, perhaps, too much neglected at present. I have found it a very useful one. Of the propriety of moderate purging, through the whole course of the disease, no reasonable man will doubt; though the practice must be deprecated of constantly irritating the bowels by drastic purgatives, which is adopted by some medical men in all febrile disorders. I think I have seen a state of gastro-enteritic irritation, which many have selected as the *primum mobile* of all fevers, induced by the too free and repeated administration of strong cathartics. This is, perhaps, as much as can be

safely enjoined as a general rule of practice. Other, and by no means unimportant practices, must be adapted to the varying phases of different epidemics, or more frequently of individual cases. The fever which prevailed in the district in which I am at present writing, in the autumn of 1824, and the following winter, was conspicuous for the extraordinary duration of the cases, many of them having lasted ten weeks. This duration did not seem materially abridged by depletory measures, however rigorous, employed at the commencement of the disease; but the effect of any deviation from an antiphlogistic regimen, excepting quite in the last stage of the disease, was such as to warn both practitioner and patient to retrace their steps. The mortality in that epidemic was small, but the patients were left in a state of frightful debility, and convalescence was generally tardy. The fevers of this autumn have been of shorter duration; but, so far as they have been observed, the proportion of deaths from them has been greater than from those of the preceding year.

I have acknowledged, that some of the phenomena of fever are, *in a certain degree*, explicable; meaning, by the qualification, that it was probable that we should merely be able to trace their connexion with other phenomena, of which no explanation could be given. Can any be offered of the symptoms of the last stage of fever,—when the patient is torpid and muttering,—when he picks the bed-cloths,—when the stools and urine are passed involuntarily, — the countenance is livid, —the vessels of the conjunctiva injected with dark coloured blood,—the tongue black,—the teeth covered with sordes, — the nostrils livid with fuliginous-looking matter, — the breathing frequent and laborious. Some of the appearances in this deplorable condition, in which, to use, with some modification, the emphatic language of Lucretius, " Medicina mussitat timore," would lead to the conclusion, that the bronchia or lungs, themselves, were the organs primarily affected. But I believe this not to be the case. Symptoms, identically the same, by no means occur in pneumonia or bronchitis. The principal mischief seems to reside in the brain; and the requisite influence not being transmitted to the lungs through the pneumo-gastric nerves, these organs labour, and the blood is deficient in arterial qualities. How is this melancholy state to be remedied? This is a still more important question, though involved in the former. If the patient do emerge from this condition (and only a small proportion does so) more will be owing to the powers of the constitution than to those of art. To endeavour to relieve the sensorium by blisters to the head and neck,—to support the warmth of the extremities,—to afford the blood the oxygen it so much wants, by free ventilation,—and to prop the sinking powers by light nourishment, with a propor-

tion of wine, constitute the sum of the resources of our art; and this is too often inadequate. Our endeavours should be directed to the prevention of this state, since we can do so little for its cure; but in certain epidemics, and certain constitutions, it will occur, under the most judicious management, though less frequently where medical assistance has been rendered from the commencement of the disease.

After thus glancing at the treatment of fever, (and the opinion I have expressed, that it must vary with the ever-varying circumstances of the disease, and that no general rules can meet the peculiarities of individual cases, forbids my doing more), we descend into an arena, thronged with litigants, conspicuous, some for vehement, and others for vacillating opinions. The inducement to *ratting* on the question of contagion is so very strong, that I cannot wonder that many physicians should have wanted civil courage to refuse the tempting bait. To be praised by senators, and quoted in gazettes and newspapers, is so very alluring! and how appalling, on the other hand, to be held up to contempt and derision by those consummate authorities on all medical questions! Practical men should express their opinions on this point boldly and manfully, and not allow fashion to dogmatize on one of the most important and difficult questions that can be submitted to human contemplation, as she would on the cut of a coat or the curl of a whisker. Dr Charles Maclean now possesses only extra-professional reputation. He is very much praised in Parliament, but no where else. "This butterfly" has been broken "on the wheel" of German erudition. It is true that the pains-taking German has employed a forty-folio power, where one would have sufficed. If any man will take the trouble to look into the collection of Licisinus, he will there find, bound up with a copious extract from the work of *Fracastorius*, *de Morbis Contagiosis*, one by Gaspar Torella, published fifty-two years before the assembling of the Council of Trent, and consequently before the possibility of any manœuvring on the part of the former individual with that Council, in which are these words, (it is of syphilis he speaks): "Sicut scabies est contagiosa, cujus testis est Avicenna, cap. viij, &c. ubi dicitur, quod scabies inficit per modum lepræ, et non inficit quod ex scabie eleventur *fumi putridi corrupti*, sicut in phthisi et *febri pestilentiali*, sed quia ex scabie emittitur quid grossum, adhærens superficiali citò evaporans, quod maximè inficit ex contactu." It will readily be perceived, that it is not for its classical elegance that I quote this precious piece of Latinity; but because it shews that Avicenna explicitly asserted the two modes of communicating disease, the contactual and remote, and that his opinion was adopted by a writer of the fifteenth century. It is, perhaps,

scarcely necessary to add, that the contagious nature of phthisis, which seems so oddly placed in the same category with pestilential fever, is still a part of the medical creed of the south of Europe.

The controversy between the high contending parties, contagionists and anti-contagionists, seems interminable. Each can invalidate the inferences of its opponent, though it fails to establish its own. The reason is obvious: truth lies between, in a middle course,—one followed by some of the best practical physicians of the present day,—and which leads us to the best explanation of the phenomena. It is scarcely requisite to say, that the doctrine alluded to, is that which regards fevers, not typhus merely, but all epidemic fevers, as owing their origin to common causes, designated by the terms *malaria*, *paludal effluvia*, *constitutio epidemica*, &c.: but having originated, to be communicable to others, by emanations from the bodies of the sick. Dr J. M. Smith would tell us, that we have "recourse to more causes than are sufficient to explain the phenomena; and, what is equally unphilosophical, maintain, apparently without perceiving the absurdity, that two poisons, essentially different in their nature, are capable of producing the same specific disease." But, in the *first* place, recourse is not had to more causes than are sufficient to explain the phenomena. Infection alone will not explain the simultaneous attack on crowds of individuals, at the commencement of an epidemic; whilst paludal effluvia will not explain, why all the members of a family, or all the attendants upon a patient in typhus, become affected with the disease, whilst the inhabitants of adjacent houses are exempt from it. Again, there is no evidence that the two poisons are "essentially different in their nature." A difference of origin does not constitute a difference of nature. We happen to know nothing about the nature of either one poison or the other. We only infer their existence from certain effects on the human frame, and, if these effects be the same, the identity of the poisons is demonstrated. Dr Smith acknowledges that his "*Koino-miasma*" arises from the decomposition of organized matter. Is it incredible that organized beings, whose every secretion is vitiated by disease, should emit a poison of the same nature, or, in his own language, that "*Koino-miasma*" and "*Idio-miasma*" should be the same?

I am of opinion, then, that the human frame, suffering under the disease, throws out a poison, which, if not suffered to accumulate about the person of the patient, or to be concentrated in the atmosphere, is *comparatively* innoxious; but which, if cleanliness and ventilation be neglected, speedily engenders a similar disease in those exposed to its influence. I go farther, and say, that, under the most favourable circumstances,

individuals, such as nurses, brought into long and close communication with the sick, are liable to be infected. But, in making this acknowledgment, I should be sorry to add to the popular alarm on this subject, which, in provincial towns at least, I know to be excessive. In the present dearth of public news, when extracts from medical works are not unfrequently to be found in the newspapers, a favourable opportunity, of which periodical and other writers would do well to avail themselves, seems offered for allaying this undue apprehension. The clergy I have found ever ready to discharge most zealously and conscientiously their duties to the sick; and it is honourable to them that they do so, in spite of a strong conviction of the danger to which they are exposing themselves. But I wish to impress on the minds of these gentlemen, that they exaggerate the danger; that, with the precaution of ventilation, if it have been neglected, previously to their entering the sick room, and the distance at which they ordinarily remain from the patient's bed, nor is there any necessity for close approximation, the risk is absolutely null. I will add, too, that a feeling of confidence in their own security is no inconsiderable means of realizing it.

I almost pledged myself to present nothing new to the reader, and he may probably think the pledge redeemed. I wished to express my opinion, that fever is a state of the system as independent, as inflammation, or any other state of it; and that those have erred from the path of inductive philosophy, who have founded their doctrines and practices in this disease, not on its own phenomena, but on conditions of our frame, whence they have chosen to suppose it originated. They seem to have been led to these opinions by an erroneous analogical reasoning, from symptomatic to idiopathic fevers; and to have been confirmed in them by confounding, in their morbid dissections, the results of the accidents or concomitants of the disease with what is essential to it. I questioned the truth of the doctrine when I happened to hear it orally delivered by Broussais in 1817; and subsequent observations, not by any means inconsiderable, have converted my sceptical doubts into a firm conviction of its erroneousness.

ART. II.—*Treatment of Dysentery by Injections of Cold Water.* Abstract of a communication published by Dr JOSEPH KENT, of Bladensburgh, in the United States.

WHATEVER opinion may be entertained of the remote or the proximate causes of dysentery, one thing is very certain, that the

villous coat of the large intestines is in a state of considerable inflammation, attended with fever, and all the well known distressing train of symptoms that take place from obstinate constriction.

Most practitioners discern two stages of the disease. In the early stage I have generally used the lancet with the best effect, together with free and copious purging, for which purpose I have found nothing to compare with calomel, together with antimonial diaphoretics. Viewing dysentery as presenting an inflamed state of the lower intestines, I have been led to adopt a practice predicated upon that view, which, although novel in a great degree, has been attended, in every instance, with the most certain success. I use very cold water, (rendered so even by ice), thrown up the bowels in form of an enema, every half hour. This course, in some instances, I have directed to be continued for twenty-four hours, or more, without intermission. The effect has more than equalled my expectations. Every distressing symptom is speedily alleviated, the tenesmus subsides, the fever abates, and the dejections assume a better aspect. I would not be understood as depending upon this remedy alone, but as part of the plan of cure, it has proved of infinite advantage in every instance where I have employed it. This practice appears to me to be sanctioned by the soundest reason; for, if the gut be topically affected with heat and inflammation, what, let me ask, can be more likely to allay that inflammation, than bathing the inflamed coats of the intestine with cold water? We use it to inflamed eyes, and other parts, then why not the bowels? Nor has cold water thus applied to the lower intestines, at any time forbid me the use of all the other remedies commonly employed. I bleed, I give calomel, with other purges; I use diaphoretics, the warm bath, or whatever the particular symptoms may at the moment call for, without any interruption to the injections of cold water. I am very much inclined to think that too much dependence in dysentery is often placed upon opium, and that it is generally resorted to too early in the disease. The temporary ease it procures is delusive, while the inflammatory diathesis is heightened by its stimulating as well as its costive influence.

The idea of using cold water in dysentery first occurred to me in the summer of 1823. I directed its use with ice, in the case of an interesting little boy, the grandson of Mr Davies, formerly innkeeper in Washington. This child was extremely ill, and I almost despaired of him, but he recovered. I have prescribed it since with undeviating success in many cases, in conjunction with other remedies.

ART. III.—*On the Indications and Treatment of Empyema.* By CHARLES HASTINGS, M. D. Physician to the Infirmary, Worcester.

IT has for some time been my conviction, that we are too much disposed to abandon, without any attempt at relief, prolonged cases of disease in the cavity of the chest, often erroneously judging, that so much mischief has been produced in the structure of the organs contained in this cavity, as to render the continuance of life, for any long period, altogether impossible. There are few individuals, who have been much in the habit of watching the progress of such affections, who cannot bring to their recollection cases of this nature, in which, after the doom of the patient has been declared inevitable, the sanative powers of the constitution have been alone sufficient to bring the disease to a happy termination. The present imperfection of our art, and our almost entire ignorance of the manner in which the more intricate functions of the animal body are performed, doubtless afford a plausible apology for this erroneous prognostic on the part of the physician, and have hitherto shielded him from reproach for this want of skill in diagnosis. But we in the present age may hope, that the principles of our profession are becoming more fixed, since we are patiently and steadily endeavouring to accumulate and arrange facts, as the only solid basis on which any permanent superstructure can be built.

In no department of medicine has the effect of this enlightened mode of investigation, within the last few years, been more apparent, than in our increased and increasing knowledge of the diseases of the chest. Indeed, so successfully has this class of affections been latterly cultivated, as to give good reason to believe, that, were medical men in general animated with a similar zeal to that which has enabled some late cultivators of this branch of knowledge to discriminate the various diseases of the chest more accurately from each other, the time would not be far distant, when a physician will be considered just as culpable for not ascertaining and pronouncing whether consumptive symptoms are produced by disease of the mucous membrane of the lungs,—by chronic inflammation of the cellular structure of that organ,—by a vomica,—or by effusion into the sac of the pleura,—as he at present would be, for not deciding, after proper examination, whether a patient, to whom he was called, was affected with inflammation of the stomach, or the lungs.

To say, that such precision of diagnosis is either not desirable, or that it will not lead to any practical important result, has al-

ways appeared to my mind as the reverse of rational, and as bordering on the feeling that is opposed to every attempt at improvement, which does not bring with it some immediate and certain advantage,—a feeling than which nothing can be more inimical to the progression of science. To the above remarks I have been led, by observing a disinclination amongst some of my medical friends to the use of the cylinder lately invented by Laennec, arising either from distrust of the evidence afforded by this instrument, or from hesitation as to the probability of any improvement in the treatment of the diseases of the chest ever being effected by this means; or from a belief that the instrument can never be introduced into general practice. I would simply reply to these remarks, that no evil can possibly result from the experiment; and, if it be fairly tried, time alone will give the answer to these objections, provided the results obtained be registered and recorded. A body of facts will thus accumulate, which will be coming constantly under the eye of the profession; and the good that attaches to this mode of investigation, will soon be apparent to the zealous cultivators of medical science. But it is not my wish, at present, to attempt an estimate of the value of this mode of discovering what is going on in the cavity of the chest, when diseased. If it were, I should not fail to enlarge on many points, which will not even be touched upon here. It may not, however, be irrelevant to remark, that the use of the stethoscope is not at all by me considered as superseding the necessity of an accurate attention to symptoms; on the contrary, it is only when the signs afforded by the cylinder are viewed in connection with the state of the general functions of the body, that they should be deemed of high pathological importance. It is of the utmost consequence that this consideration should be present to the mind of every auscultator; for, if it be not, the instrument will soon mislead him. The work of the inventor of the cylinder is rather open to criticism, in my mind, inasmuch as he seems inclined to call us away from an attention to symptoms, and dwells almost exclusively on the results of auscultation and percussion;—but this by the way; for, as was before observed, it is not my intention to enter on any general discussion of the merits or defects of the cylinder, being rather actuated by a desire of cheering the hopes of those who look despairingly at those cases which are often indiscriminately called consumptive, and of evincing, that many persons, in whom great changes take place in the organs of the chest, live and are strong; and that we are not to abandon such cases, because the prospect is dreary, and death appears inevitable. This is my main object; but as examples will be cited of these diseases, in which the treatment was much directed by the re-

sults afforded by the stethoscope, the opportunity will not be lost of making such remarks as the facts seem to justify.

There is no disease to which the chest is subject, in which the benefits resulting from the use of the stethoscope have, in my hands, been more conspicuous, or the propriety of continuing to employ remedies, under apparently the most hopeless circumstances, has been more apparent, than in cases of empyema; for both of which reasons, I will submit some cases that have occurred to me of this nature. But before relating these cases, I shall adduce some account of this affection from our most approved authors.

It may be as well to premise, that, by the term *Empyema*, I mean a collection of sero-purulent fluid, lying in the cavity of the chest, which fluid may occasionally be mixed with softened tuberculous matter, that has made its way from the lungs into the sac of the pleura.

The term Empyema, being primarily derived from ἐν and πύον, *pus within*, signified, among the Greek authors of the Hippocratic age, nothing more than a collection of pus, without any reference, direct or implied, to the cavity containing it. Thus, Hippocrates, Epidem. ii. p. 1083, relates, that, in the pestilent epidemic of the spring season of which he is speaking, the febrile concoction proceeded to *empyema*, that is, to suppuration. But he likewise employs *empyema* in a specific sense, to signify, as it does with us now, a collection of matter within the cavity of the pleura. Thus, Aph. v. 8, p. 90, (Ed. Lind.), he lays down the doctrine, that "if patients under pleurisy are not relieved by crisis, (repurgantur) within fourteen days, a metastasis to empyema takes place." It was probably the credit and importance of this and the adjoining aphorisms, which afterwards fixed this latter signification of the appellative to pectoral suppuration; for, though Galen, in his notes on the above, and other similar passages, argues for the general notion, he confesses, Lib. de Tumoribus, p. 355, that some physicians think that those alone are properly named *empyoi*, or empyematous, in whom pus is collected between the chest and the lungs. Nay, he assures us, in his commentary upon Aph. v. 27, "that Hippocrates for the most part, by this appellation, understands a collection of pus in the great space between the lungs and chest;" adducing, as an instance, the book De Internis Affectibus, which was, in Galen's time, often denominated, περὶ ἐμπύων, *De Empyematicis*. In it Hippocrates mentions the practice of paracentesis, both by section and cautery, to which he alludes, less intelligibly, in Aph. vii. 44; "But if the pus break into the cavity of the chest, in whatever part it appears to be indicated, from that part, chiefly by incision or cautery, it must be let out, in small quantities at a time"

—De Intern. Affect. iv. p. 302. The aphorism cited pronounces, " That those persons affected with empyema, who are treated by incision or caustic, generally escape, if the pus flows pure and white; but that if it come forth bloody, and fetid, and muddy, or clotted, they perish;"—a prognosis which, though not the most correct, has yet some foundation in nature, and corroborates the subject of our paper, by proving that Hippocrates had seen cases of empyema recover, even after the rude surgery of those ancient times. However, it must be remarked, that the *ustio*, or cautery, *both in back and breast*, which is often mentioned in this book, does not always refer to paracentesis, when he speaks of empyema, in this book; for, in the 11th chapter, he distinguishes between them. " The effusion into the chest takes place about the fortieth day, and may be ascertained by the cessation of the expectoration, &c.: after the pus has been drawn off by incision or cautery, the wound is to be dressed with a green linen rag, which is to be withdrawn next day for the escape of more pus, and again on the third day, and so on till it be dried up. To allow the patient meat and drink, may be admissible; the latter only a little wine or water. He may eat also origanum, if not to be had recent, dried, with honey. The patient must not be exposed to cold, and ought to rest upon a soft bed. Treating the disease in this way, we shall produce a rapid recovery. But when we cauterise for these diseases, (he means as an epipastic) we apply to the sore, for one day, a leek well pounded."

Though Cælius Aurelianus, ii. 17, v. 8, seems to understand empyema in the general sense, yet the general barbarism of his language may explain this anomaly; the more especially, as Aretæus, i. 9, distinctly asserts, with Hippocrates and Galen, that those who have pus collected in the region of the thorax, are named *Empyoi*. From the annotations of Galen to the above passages of Hippocrates, we learn, that the perforation of the chest, by incision, was in his time named, as now, paracentesis; and that it was a more usual mode, of evacuation, than the actual cautery. Ætius, Serm. viii. 75, p. 85, has the same notion.

I have thought it necessary to introduce the disease by these remarks, as I find that the celebrated Van Swieten, Comm. xi. 1183, has given too much weight to the *general* sense of the term; whilst we have shewn, that Hippocrates himself, and all good writers, have always understood empyema, as we do now, to imply a collection of pus within the cavity of the chest. Of course, it was not to be expected that he should correct the error of his master Boerhaave, in the 1184th aphorism, " That empyema always supposes a purulent vomica, or abscess, to have broken, from whence the matter escaping, is gathered within the

breast;"—an error in which it is probable, from the above passages, also Hipp. De Morbis, iii. 15, that the ancients likewise participated. This was reserved for modern pathologists, particularly, though not solely, to the learned cultivators of this important discipline in France,—to Bayle, to Laennec, to Andral, and Collin. In point of fact, the great Fernelius may be considered as the first distinct author who remarked the suppurative effusion into the pleura, independent of vomica.

"There is sometimes a complaint (he says), which begins with serum, and ends by signs and symptoms of suppuration; but without the fever and exciting causes," *i. e.* without a vomica. "Ea proinde affectio non suppuratio, sed suppurationi finitima est."—Path. v. ii. Dr Cullen, likewise, First Lines, art. 349, considered empyema as an occasional termination of pleuritick inflammation. Sauvages also has an *Empyema pleuræ*, i. 694. Dr W. Hunter had observed, perhaps before either of the latter, that the serum of inflamed membranes is often formed into *a kind of pus*, and frequently found in large quantities in the cavities of the breast, belly, &c. On the whole, however, these observations were of less consequence with regard to empyema, since physicians, both of that, and the present period, have generally despaired of their art in its relief. "If the empyema is of long standing, and the strength decayed, a colliquative diarrhœa comes on, with a wasting of the body; the operation, instead of relieving, hastens the death of the patient. When this disorder is merely local, the operation may succeed; but if the habit is strumous, or otherwise unsound,—if fever, coughing, thirst, and other symptoms, are either numerous or considerable, there is but small hope of recovery. The operation is also ineffectual if the lungs adhere to the pleura, or if the matter lodged on the diaphragm was emptied from a cyst." Were this a correct view, how few recoveries should we have to record from empyema! Yet this is still the opinion of a great part of the profession, is a literal extract from Dr James's deservedly popular Medical Dictionary, and must still damp the ardour of many sanguine practitioners. Luckily, there every now and then occur cases which demand immediate paracentesis, in order to prevent suffocation; and, likewise surgical cases, originating in accidents and wounds, which, by their successful event, demonstrate occasionally the prejudice involved in the above prognosis. It is thus, from the hope inspired by this contingent success, that the best dissertations on the subject are found to be confined to works on surgery; and it is to the works of Le Dran, Heister, Sharp, Bell, ii. p. 583, Kirkland, ii. p. 75, Pearson, i. p. 94, White, p. 303, Petit, i. p. 80, Sabatier, ii. p. 249, Richerand, Nos. Chir. iv. p. 168, Hey,

p. 476, and others, that I would recommend the curious with respect to this affection, for more ample information.

Case I.—*Empyema, conjoined with Tuberculous affection of the Lungs.*

In May 1822, I visited R. A. æt. 19, in consultation with Mr Watson of Stourport. This young man had lived in the country till within the last two years, since which he had been confined in a mercer's shop. In October 1821 he was attacked with hæmoptoë, which lasted one day. Previous to the attack, his breath had been short, and he had been affected with severe cough for several weeks, on which account he took spirits and water every night at bed-time. From the attack of hæmoptoë till March 1822, he had a cough, and lost flesh. It was at this time that Mr Watson first saw him, who applied blisters to the chest, and paid attention to the hepatic secretion. The pulse was under 100; the cough not very troublesome, excepting at night. The expectorated matter was in small quantity, but had every appearance of purulence.

In the beginning of April, a seton was inserted in the integuments of the chest. He took liquor potassæ and decoction of sarsaparilla twice a-day, and occasionally a dose of blue pill.

He continued this plan with slight variation till the time that I saw him (May), without any amendment being perceptible. It was now observed that the pulsation of the heart could only be felt on the right side of the chest, and he could not lie upon that side. The pulse was 120, and wiry: the emaciation very great. By percussion, the left side of the chest sounded more than the right, although there was not less sound than is usual on the right side. By measurement, no difference was detected in the magnitude of the two sides of the chest.

By the cylinder, scarcely any respiratory murmur was heard on the left side of the chest. The action of the heart was feebly audible in its usual situation, but most distinctly on the right side. The respiratory murmur was very distinct on the right side: it was in fact *puerile* in some parts. For some space above the right mamma, pectoriloquism was perfect.

The combined results of the examination by the stethoscope and percussion, shewed that there was a large tuberculous cavity in the right lung, and that scarcely any air entered the left lung. This, from the displacement of the heart, and the inability to lie on the right side, appeared to arise from a collection of fluid in the left sac of the pleura. Percussion also seemed to indicate the presence of air in that side of the chest.

The principal point to which our consideration of the treatment turned, was to determine upon the propriety of evacuat-

ing the cavity of the chest of the fluid contained in it. We agreed, that, in consequence of the evident existence of tuberculous disease to a great extent in the right lung, the operation could only be regarded as a palliative; because, supposing that we did relieve the left side of the fluid contained in it, death appeared inevitable, from the tuberculous disease on the right side, and therefore, that the operation should not be performed, unless considerable dyspnœa came on from the pressure of the fluid. In the mean time, he was advised to take small doses of laudanum, and balsam of copaiba.

I again saw this patient on the 17th of June. His breath had become much worse, and the cough and expectoration were very troublesome. Since my last visit, a copious hæmorrhage had occurred from the bowels, which appeared to relieve him.

As he was now very anxious that the operation should be performed, it was agreed upon, after another examination with the cylinder and percussion, which afforded similar results to those before stated. We also employed Hippocratic succussion, and thereby distinctly heard the fluctuation of a fluid in the cavity of the chest.

An incision was made with a scalpel in the space between the sixth and seventh ribs, near their angle, and nearly two quarts of dark coloured sero-purulent fluid, together with a large volume of highly offensive gas, were discharged. He bore the operation well, and expressed relief from it. On the second day after the operation, a silver tube was introduced into the chest, and about a pint of fetid, purulent, matter was discharged. He was much more easy in his breathing than he had been before the operation; but the cough and expectoration continued as before.

On the 25th of June, much gross and purulent fluid escaped by the side of the tube. The heart pulsated strongly in the epigastric region. The cough was very troublesome, and death was evidently approaching. He expired on the morning of the 28th.

Dissection 48 hours after death.—The body was emaciated to the last degree. Decomposition had commenced.

Thorax.—The heart was nearly in its natural situation, but more to the right side than usual. It was fluid, and the parietes very thin.

The left lung was hepatized, and very much compressed. There was no remnant of the usual vesicular appearance, and it did not occupy a fourth part of that cavity of the chest. The whole of its pleural investment was covered by a thick layer of viscid yellow lymph, in appearance not unlike chamois leather. The costal pleura was much thickened, and covered

with a false membrane. There was an ulcer in the pulmonic pleura, through which, when the lung was pressed, a fluid was discharged into the cavity of the chest.

The right lung was very much diseased. Numerous tubercles were discovered in every part of it. Its superior lobe adhered firmly to the first rib. There were also in this lobe several cavities, half filled with a thin fluid, mixed with softened tuberculous matter.

Abdomen.—The liver and spleen were rather larger than usual. In other respects, the abdomen was free from disease.

Observations.—In this case, very important information was derived from the stethoscope. The symptoms, taken alone, could not have directed the treatment in so satisfactory a manner. It is true, that, without the use of the cylinder, the fluid in the left cavity of the chest might have been supposed to exist; but the diseased state of the right lung could not have been predicted, and therefore the operation of paracentesis might have been proposed as a means of cure, whereas it could only serve as a palliative.

But even the existence of a fluid in the cavity of the chest, without the use of the stethoscope, would have remained conjectural, and not sufficiently evident to call for the operation: whereas that instrument, which revealed this fact by the sense of hearing, made its existence as certain on the first examination, as though it had been seen. At the second examination, we had also confirmation of the fluctuation of the fluid in the chest; but that was an accidental occurrence, depending on the presence of air in the cavity of the chest, and this fluctuation did not even exist when the presence of fluid was first positively demonstrated. The extreme degree of disorganization so positively indicated, at once evinced the futility of any attempt at cure by internal remedies; and this in such cases is no slight benefit. The different processes by which the two lungs were rendered unfit for the usual office, are also worthy of remark: the right by the gradual increase of tuberculous disease, which completely destroyed its texture; the left, by the pressure of a sero-purulent fluid, formed in the cavity of the pleura from slow inflammatory action, was so compressed as to be completely hepatised, and not a fourth of its usual size.

Case II.—*Empyema, from Chronic Pleurisy, terminating fatally.*

William Osborne, æt. 23, was brought to the Worcester Infirmary on the 1st of January 1825, under the care of the surgeon, in consequence of a large abscess, which had a short time

before appeared on the right side of the spine, immediately below the inferior angle of the scapula. Independently of this abscess, his health did not seem, in the opinion of the surgeon, to be much affected; but he had a slight cough. It was deemed expedient, four days after his admission, to open the abscess, and about three pints of fetid pus were discharged from it. The day following the evacuation of the abscess, he complained of dyspnœa, and pain about the chest; on which account he was bled largely, and freely purged. Two days afterwards, the symptoms having experienced little alleviation, he was again bled, by the advice of the surgeon, and several leeches were applied to the chest, which was also extensively blistered, but without any mitigation of the pain, difficulty of breathing, or cough. On the 19th instant I visited the patient. The pulse was then very quick and feeble; the anxiety of countenance was very distressing; the sweat hung upon his cheeks; he had occasional shiverings; he could not lie down, but was constantly in a sitting posture, rather reclining to the right side; the lips were rather purple; the wound on the back was healed. On striking the right side of the thorax with the hand, a dead sound was heard, whereas a hollow sound was perceptible when the left side was struck.

With the stethoscope, I could not detect any respiratory murmur on the right side, excepting immediately under the clavicle, where it was puerile. On the whole of the left side, the respiratory murmur was distinctly heard, and was louder than it usually is in adults. I did not propose any remedies, thinking the operation of paracentesis the only chance; and that seemed so poor an one, that it was not pressed.

On the 22d, I again visited this patient, and found him apparently dying, with a pulse scarcely perceptible, a leaden countenance, and a glassy eye, with a general clammy sweat over the surface of the body. In addition to the indications before afforded by the stethoscope and percussion, we could now, by the Hippocratic succussion, distinctly hear a fluctuation in the chest. The man was most anxious for some attempt to be made to relieve him; and, on this account, rather than from any hope of relief, I was desirous that the paracentesis of the thorax should be tried, before the performance of which, I measured the right and left sides of the chest, from the spinous processes of the vertebræ to the centre of the sternum, and found the length of a string passed from the spinous process of one of the dorsal vertebræ to the centre of the sternum, on the right side, to be 24 inches; and on the left side, a string passed from the same spinous process to the same part of the sternum, to be only 22 inches. The greater magnitude of the right side of the chest was also manifest to the eye.

Notwithstanding the almost dying state of the patient, at his earnest solicitation it was determined that paracentesis of the thorax should be performed. At the commencement of the operation, there was positively no pulse at the wrist, but it could be felt near the axilla. A transverse incision was made between the 5th and 6th ribs, near their angle, and a sero-purulent fluid quickly made its appearance, and seven pints, by measure, were slowly evacuated. During the operation, the man expressed himself much relieved. His breathing became more easy, and the pulse was again perceptible at the wrist. He was ordered to take frequently small quantities of gruel with brandy in it, and a plug of lint was introduced into the opening.

On the 23d I found him much more comfortable. The breathing was much more easy, and the countenance was calm. The hands and feet were of a natural warmth. The pulse was 110, and very perceptible. When the plug of lint was removed, about a pint and a half of sero-purulent matter flowed from the opening. He was still allowed gruel.

On the following day he was still doing well, and about the same quantity of fluid came from the opening as on the preceding day.

The improvement, however, was not progressive. On the third day after the operation the dyspnœa returned, and the pulse became quicker. He nevertheless survived to the 9th day; and on several occasions expressed much gratitude for the relief he had obtained by the operation.

Dissection.—On opening the thorax, the right lung was found completely collapsed, and was situated in the upper part of the chest. It was not very much larger than a man's fist. On cutting into its substance, it presented the appearance of spleen, its vesicular structure being quite destroyed, and there was no crepitus heard when it was pressed. The pleura pulmonalis was very much thickened, three or four times more so than is natural. The pleura costalis was also thickened, and there was a false membrane covering it of considerable thickness. A considerable quantity of sero-purulent fluid was found in the sac of the pleura. It was also evident, that the abscess in the back was connected with the cavity of the thorax, as the remains of the communication between the abscess in the back, and the cavity of the thorax, were plainly traced.

The left lung was inflamed, and congested with blood: it was, however, crepitous, and there was not any sign of tuberculous degeneration or hepatization of its structure. The pleura on the left side was healthy.

The pericardium, and external surface of the heart, bore evident marks of severe recent inflammation.

The mucous membrane of the intestines was in several places ulcerated.

Remarks.—The above case appears, to my mind, full of interest to the pathological investigator, whether we view it as an instance of the certainty of the diagnosis to be attained by the conjoined use of the stethoscope, percussion, and Hippocratic succussion; or as pointing to the propriety, under certain circumstances, of performing paracentesis, when apparently scarcely any hope of life remains. For some time the great benefit the above patient (who was literally in a dying state when the operation was performed) derived from it was so great, as to inspire hopes of his ultimate recovery. Indeed, it is my own conviction, and that of others who visited the patient, and saw the dissection, that but for the supervention of the active inflammation of the heart and pericardium, the man would have recovered. It has since struck me, that he might have been saved by bloodletting; but the pulse never so sufficiently recovered, after the operation, as apparently to call for that evacuation. I should, however, be disposed to try it on any similar occasion. The great ground for hope of recovery in this case, was the soundness of the left lung, which enabled it, after the operation, to receive such a quantity of air, and consequently of blood, as to produce great amendment of the pulse, and general strength. It is not improbable, too, that, if the operation had been earlier performed, the chance would have been better. It should have been done the day I first saw the patient, but I had not then as much confidence in paracentesis as I now have. But even admitting, which is by no means the case, that recovery under the above circumstances was impossible, still we must contemplate the operation as the means of allaying suffering, and in that point of view alone its effects were highly gratifying; and I shall never regret having advised the performance of an operation in such circumstances, though, on every occasion, the fatal event should follow, provided as grateful expressions, and as signal relief, result from it, as in the above individual.

Case.—*Empyema from Chronic Pleurisy, opening on the anterior part of the Chest; event favourable.*

On February 26. 1825, John Bond, aged 25, a labouring servant, was received as an in-patient of the Worcester Infirmary, under my care. He was affected with difficulty of breathing, cough, and copious expectoration of a muco-purulent matter, tinged with blood. There was considerable emaciation. Pulse 100. Tongue clean. He had been ill five

weeks. The disease commenced with a pain in the left shoulder, and dyspnœa. About a fortnight afterwards swelling made its appearance about the centre of the pectoral muscle on the left side; at that time also cough came on, attended with a very great expectoration of thick bloody matter. An incision was made into the swelling, and about a pint and a half of fluid was let out, after which the spitting began to abate. At the time of admission into the Infirmary, there was a small opening in the space between the fourth and fifth ribs, just about the centre of the pectoral muscle, from which a bloody, purulent matter was discharged, but not in great quantity. There was emphysema of the cellular membrane for several inches surrounding the opening.

On percussion of the left side of the chest, there was very little sound elicited in any part of it. The right side of the chest, however, gave a hollow sound when struck.

With the cylinder a respiratory murmur was distinctly heard over the whole of the right side of the chest.

On the left side of the chest no distinct respiratory murmur was detected, but a kind of humming noise when the ear was applied to the cylinder: this was nowhere so conspicuous as on the left side of the back. If the cylinder was placed over the opening in the parietes of the thorax, when he coughed, a peculiar hissing noise was heard, as if occasioned by the rushing of air through the opening.

He was directed to take tincture of digitalis and colchicum in barley water three times a-day, and two grains of antimonial powder and one grain of calomel every night.

On the 5th of March, the expectoration was much diminished. The cough and dyspnœa were not relieved. The discharge from the opening continued. Pulse 100.

On the 8th of March, the cough, difficulty of breathing, and expectoration were much better. The discharge from the wound was very scanty.

He repeated the mixture, but omitted the pills.

On the 16th of April, the wound was healed. There was scarcely any dyspnœa. The cough was better, and without expectoration. Pulse 90. Percussion of the left side of the chest gave a more hollow sound than before. The respiratory murmur was also more distinctly heard with the stethoscope.

He continued the mixture.

On the 23d of April, he had no cough, and very little difficulty of breathing on exertion. Pulse 80. The left side of the chest sounded well on percussion. The respiratory murmur was also heard more distinctly with the stethoscope.

On the 30th of April, he considered himself in good health, and was discharged from the Infirmary.

The stethoscope at that time afforded nearly as distinct a respiratory murmur on the left as on the right side of the chest. The result of percussion was also equally satisfactory.

I have heard of this patient on two or three occasions since his discharge from the Infirmary, and find he remains in good health.

Remarks.—The favourable termination of this case of empyema, by the sero-purulent fluid making its escape through the parietes of the chest, seems to point out the propriety of imitating this effort of nature, whenever the existence of fluid in similar cases can be satisfactorily ascertained: For the relief which followed the escape of the fluid from the cavity in this case was very striking. Previous to it he had severe cough, dyspnœa, bloody purulent expectoration, quick pulse, and progressive emaciation; all of which became relieved gradually afterwards.

I consider, however, that the satisfactory results obtained by the aid of the stethoscope and percussion, were of the highest possible importance; for by them all doubt as to the nature of the case was immediately removed, and the free communication of the external abscess with the cavity of the chest ascertained. It was exceedingly pleasing also to find, that, as the general health improved, the lung of the side affected, which, when first examined, received scarcely any air during inspiration, became gradually more pervious, and that at length it seemed again to receive nearly as much air as the opposite lung. From this we may fairly conclude, that, in consequence of inflammation of the pleura, considerable sero-purulent effusion may take place into the cavity of the chest, which may compress the lung so as for a time to prevent the free access of the air into it; but that afterwards, provided the fluid disappear from the cavity of the chest, the lung may again expand, and receive its wonted supply of air. It likewise seems to remove the objection stated by Dr Forbes against the operation of paracentesis, viz. "that in empyema from chronic pleurisy, the existence of adhesions impressing and binding down the lung, will not only render the operation nugatory, but remove almost the only chance left of recovery *."

CASE.—*Empyema from Chronic Pleurisy, cured by Paracentesis Thoracis.* Communicated by Mr STEPHENSON *jun.*

Mr P. B., a young gentleman, 19 years of age, was suddenly seized, after using great exertions in walking, with acute pain

* Forbes on the Stethoscope, &c. p. 219.

in his chest, referable chiefly to the left side of it. The difficulty of breathing was also very considerable. He was in London at the time, and sent for his medical attendant, who used the lancet freely, without rendering relief. About a fortnight after this attack, a tumour was discovered on the left side of the thorax, which gradually increased, and the cough continued, with a copious expectoration, and very great difficulty of breathing.

On the 27th of June 1823, he arrived in Worcester, when I was requested to see him. His symptoms were of the most urgent nature. There was great emaciation, extreme restlessness, anxious countenance, laborious breathing, very troublesome cough, and hectic fever. He could not lie on the left side, or in the recumbent posture. The skin was damp and cold. Diarrhœa was urgent. Tongue furred and dry. Pulse 120, and wiry. The chest was greatly distorted, projecting much on the left side, and there was an evident fluctuation between the ribs of that side. The heart beat distinctly on the right side, but could not be felt on the left side.

He readily assented to the operation of paracentesis thoracis, and in the presence of Mr Sheppard and my father, I made an incision along the upper edge of the 7th rib, and discharged 6½ pints of fœtid pus from the left cavity of the chest; after which a dossil of lint was introduced into the opening, and the wound was lightly covered. Immediately after the operation his breathing was relieved.

He was directed to take iij. gr. of extract of lettuce every four hours, and two large spoonfuls of chalk julap after each purging stool.

At eleven at night the skin was very hot. He was restless, and occasionally delirious. The breathing was quick, but not so laborious. Pulse 180. Tongue dry.

On the 28th, he had slept pretty well. He breathed more freely. The cough was troublesome, and caused great pain in the left side. The skin was cool. Pulse 150. Tongue moist. Two loose evacuations, containing a quantity of bile. On removing the dressings from the wound, 1½ pints of pus were discharged. The opening being free, the dossil of lint was discontinued, and the matter was allowed to discharge as it collected. The wound was dressed simply.

The pills were continued, and he took a linctus of mucilage, oil of almonds, and syrup of poppies, to allay the cough.

In the evening the cough was better. The expectoration was less, and frothy. The skin was cool. Pulse 150. There had been much discharge from the wound since the morning.

On the 29th, he had slept tolerably well. The cough was better. The pain in the side had diminished. The skin was cool.

Pulse 130. Tongue moist. Bowels open, but not purged. The discharge was copious.

In the evening the cough was troublesome. Pulse 130. The discharge had diminished. The edges of the wound were inflamed and painful.

A poultice was applied; and the linctus and pills were continued.

On the 30th, he had passed a restless night, but felt stronger, and the cough was better. Tongue moist. Bowels open. Pulse 150, firmer. The wound discharged half a tea-cupful of good pus.

On the 1st of July, he had passed a good night. The cough was much better. Tongue moist, and cleaner. He had one evacuation this morning. Pulse 115. A table-spoonful of sero-purulent matter discharged from the wound. The edges of the wound were granulating. He complained of hunger, and requested he might have some mutton-broth and a boiled egg for dinner, which were allowed him.

From this time the rapid improvement of the patient was very gratifying. The pulse became steady, and seldom exceeded 90. The strength increased fast. The cough seldom troubled him; and at the end of a fortnight the wound was healed. Country air was recommended and adopted with advantage, for, in a letter to his parents in September, he spoke of enjoying the sports of the field, and he gradually recovered his usual health. Since his recovery he has had a severe attack of inflammation of the hip-joint, apparently from exposure to cold, but the affection of the chest has never returned.

Remarks.—The above is a good illustration of the rapid manner in which patients, who have been reduced almost to the last degree of debility and emaciation by chronic pleurisy, and consequent sero-purulent effusion into the cavity of the chest, recover when the fluid is evacuated; provided there be no serious organic disease in the cellular structure of the lungs. In this, as it does in almost all cases in which a lung is much compressed by sero-purulent effusion, the bronchial membrane became considerably affected, and threw off a large quantity of purulent mucus; but this diseased action subsided, as it almost invariably does, soon after the fluid, which had kept up the irritation of the mucous membrane, was discharged from the chest.

CASE.—*Empyema from Chronic Pleurisy, terminating favourably after evacuation of the fluid.*

In February 1813, a young man, 19 years of age, was re-

ceived into the Worcester Infirmary. He said that he had been ill many weeks; that he attributed his attack to cold, which began with cough and pain in the left side of the chest. These symptoms did not subside, and his breathing became much affected; still nothing was done, although he visibly lost flesh and strength. At length a swelling appeared on the left side of the chest, and for that he was brought to the Infirmary. His breath was then very short, and he could not lie flat in bed, nor on his left side. The face was flushed. He was much emaciated. The cough was very troublesome, and he expectorated a considerable quantity of pus-like matter. He had every evening a paroxysm of fever, and during the night a copious perspiration. Pulse 140. Countenance was anxious; and he was very restless. The bowels were occasionally very lax.

A free incision was made into the tumour in the space between two of the ribs, and four pints of sero-purulent fluid escaped from the opening. A portion of lint was introduced into the wound, and he was directed to take a mixture of decoction of bark, and diluted sulphuric acid, three times a-day.

The symptoms were much relieved the day following the operation, and there was no untoward occurrence afterwards to impede the progress of recovery. The cough gradually subsided. The hectic fever disappeared, and after some time the wound healed; so that he was discharged from the Infirmary in a convalescent state. I saw him a year afterwards, and he had not been attacked by any pectoral symptoms, and was enabled to follow his occupation as a farming servant without inconvenience to himself.

CASE.—*Empyema supposed to arise from Chronic Pleurisy, cured spontaneously, and terminated in contraction of the Chest.*

In March 1814, a man, 60 years of age, was received into the Worcester Infirmary, on account of a contusion of the right shoulder. The appearance of the man was very singular: he was bent to the right side, and the right scapula was depressed. We soon discovered that the deformity was not connected with the accident, for which he was received into the Infirmary. On a careful examination, the chest was evidently smaller on the right than on the left side; when measured, there was more than an inch of difference between the length of a string passed from the spine to the sternum on the left and on the right side; that on the left being the longest. On the right side the ribs were much more approximated than on the left, and the pectoral muscle of the former was smaller than the latter. The man's appearance was altogether so singular, that, at the time,

I had a drawing taken of him, which is still in my possession. It exactly corresponds with the figures which Laennec has published as exemplifications of contraction of the chest: The account he gave of himself fully accounted for his state. When a child he was for many months severely ill with cough, difficulty of breathing, and pain in the right side of the chest. At length an abscess formed in the seat of the pain, which burst, and a large quantity of matter was discharged from it. This continued for several weeks, during which he was so ill, that his recovery was not expected. He, however, at length got into good health, and on arriving at manhood found himself equal to laborious exertion. He has never had a return of the pulmonic symptoms. He had the appearance of great muscular power, and never suffered from shortness of breath; as a proof of which may be noticed his devotion to field sports. In his neighbourhood I have understood he was regarded as a perfect Nimrod, who, misshapen as he was, often, by his pedestrian exploits, astonished his equestrian companions in the pleasures of the chace. I have lost sight of him for some time, and am not aware whether he be now alive.

Remarks.—This case always struck me as of considerable interest; inasmuch as, after one of the lungs was permanently compressed, and rendered unfit for the reception of any great quantity of air, from the effects of a purulent effusion into the cavity of the chest, the man not only recovered health, but became notorious from his great strength and agility.

Case.—*Partial Contraction of the Chest, supposed to arise from Empyema, cured spontaneously.*

During the summer of 1825, a gentleman, aged 25, consulted me on account of an affection of the chest. He had taken cold a short time before he came to me, which had produced a cough, and very considerable difficulty of breathing. He informed me that, from his childhood, he had been frequently attacked with such symptoms, and that he had never been strong since he had the chincough when four years of age; which was followed by inflammation of the lungs, and the formation of an abscess, which was opened on the left side. His health, however, after three years of great suffering, became very much recruited; and he recovered sufficiently to pass though the discipline of a school and a university, without material inconvenience; and, excepting at intervals, when he was suffering from cold, he pursued the occupations and amusements common to his period of life.

I requested to examine the chest particularly, and found a material difference between the shape of the two sides of the chest. On the left side, the 7th, 8th, and 9th ribs had fallen in considerably, and approximated together more than those on the opposite side. By percussion there was no sound in this part of the left side of the chest, though there was in other parts of it. By the stethoscope I discovered pectoriloquism near the angle of the ribs, in this contracted part of the chest, but not in other parts; the respiratory murmur being in all other parts natural. The right side sounded well by percussion. The stethoscope did not discover pectoriloquism on that side; and the respiratory murmur was in all parts heard distinctly.

I treated the symptoms, which had arisen from cold, as those of bronchial inflammation, and they soon subsided, and my patient recovered his usual health.

Remarks.—I conclude that the partial contraction of the chest in this instance was the result of chronic pleurisy, and that the sero-purulent effusion was pretty much confined to that part of the chest which, after the fluid was evacuated, became contracted. It is by no means an uncommon thing, in cases of chronic pleurisy, to find the effusion confined to a small portion of the one side of the chest; the pleuræ all around being so united together by a false membrane, as to prevent the fluid being diffused into other parts. But how are we to account for pectoriloquism, which existed in this part? It may be presumed to have arisen from a cavity formed, during the severe illness which occurred in childhood, either by an abscess bursting in the lungs, or by the softening of a tubercle. It is certainly remarkable, that, with so much alteration of structure in the left side of the chest, he should have been so well as to pursue the ordinary occupations and amusements of a college life, and to have enjoyed a very fair share of health.

I shall not extend the present communication by relating any additional cases of chronic inflammation of the pleura; but shall be content to draw some conclusions, which seem naturally to arise from the facts now stated.

1st, That a sero-purulent fluid may be collected, as the result of chronic inflammation, in each of the sacs of the pleura; but it is more commonly found in only one of them.

2d, That the fluid may be only seated in a part of either of the right or left sac of the pleura, as in the superior or inferior part of one of these sacs. Thus a fluid may be found in the inferior part of the chest, resting on the diaphragm, and none in

the superior part of the chest; the pleura pulmonalis and costalis, in the superior part of the chest, being united together by a false membrane.

3d, That this inflammatory action, terminating in suppuration, may or may not be connected with disease in the cellular structure of the lungs; and, if it be connected, the disease, in the cellular structure, may be either of an inflammatory or tuberculous nature.

4th, Softened tuberculous matter may find its way into the sac of the pleura, and become mixed with the sero-purulent effusion; and in this case a quantity of gas is also found in the sac of the pleura. But a gaseous fluid may be present in the sac of the pleura, combined with sero-purulent effusion, when the latter has solely arisen from inflammation of the pleura, unconnected with disease in the cellular texture of the lungs.

5th, In sero-purulent effusion, the lung is always much compressed, and greatly diminished in size; and, in appearance, the lung often more resembles spleen than healthy lung.

6th, That when there is a sero-purulent effusion into the cavity of the chest, unconnected with disorganization of the cellular tissue of the lungs, paracentesis thoracis speedily relieves the symptoms, and often effects a cure.

7th, That, when a copious sero-purulent effusion into the cavity of the chest is connected with so much disease in the cellular structure of the lungs, as to forbid all hope of eventual recovery, paracentesis thoracis may frequently be performed, as a means of lessening the sufferings of the patient, and of prolonging his existence.

8th, That the existence of adhesions, compressing and binding down the lung in chronic pleurisy, does not render the operation of paracentesis nugatory.

9th, That the use of the stethoscope and percussion is of the highest importance in cases of empyema, as certainly pointing out the existence of a fluid in the chest, and the best situation in which the incision can be made, if the operation of a paracentesis be performed.

10th, That measurement of the two sides of the chest, will, in general, verify the indications thus obtained; the side which is affected with empyema being considerably larger than that which is free from effusion.

11th, That the succussion of Hippocrates (de locis in homine, xxviii. p. 340), always affords evidence of fluctuation, when there is gas, as well as purulent matter, in the sac of the pleura.

12th, That the fluid should not be rapidly discharged from the chest, and perhaps the operation would be more successful, if it were discharged in small quantities, at several separate times.

13th, That it does not yet appear which is the most proper period of the effusion for performing the operation, whether early, before the effusion is very considerable, or late, when the fluid is in large quantity; but since our knowledge of this affection, by means of the stethoscope and percussion, will now become more precise, we may anticipate the speedy solution of this question by experience.

14th, That active inflammation of the pleura does not often follow the operation; but this occurrence does occasionally take place.

15th, That a spontaneous cure of effusion into the cavity of the chest in chronic pleurisy, not very uncommonly is brought about either by absorption of the fluid, or by the matter finding its way outwardly through the parietes of the chest; but it would not be right, on this account, to place our entire dependence on this salutary effort of nature.

16th, That when persons recover from empyema, the side of the chest, which was the seat of the effusion, is often left in a contracted state; and this contraction, according to the extent of the previous effusion, may exist either in the whole or only in a part of the side of the chest that is affected.

17th, That, in cases of empyema, under the most unfavourable appearances, we should not despond; for recovery is not impossible when the symptoms might lead us to pronounce the most gloomy prognosis.

ART. IV.—*An Account of the Asylum for the Insane, established by the Society of Friends, near Frankford, in the vicinity of Philadelphia.* By ROBERT WALN *jun.* *

[Mr Robert Waln *jun.* has drawn up a very interesting paper relative to the History and Management of the Asylum for the Insane, established by the Society of Friends, near Philadelphia. We regret that, from the extreme length of the article, we can only give an abstract of it.—ED.]

PROPOSALS were, in the year 1811, made to the Yearly Meeting of Philadelphia, from two of the Quarterly Meetings, to make provision for such of their members as were deprived of their reason. On the 14th of April 1813, the first meeting of the contributors was held in Philadelphia; and at the succeeding meeting in June, a constitution was adopted. The Asso-

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* From the Philadelphia Journal of the Medical and Physical Sciences, vol. i. p. 225.

ciation was designated by the name and title of "*The Contributors to the Asylum for the Relief of Persons deprived of the use of their Reason.*" It was considered a paramount object to establish the site of the proposed institution in a retired place, and accordingly a tract of land, containing fifty-two acres of good quality, in a high and healthy situation, with a large proportion of wood, and well supplied with water, was purchased. It is situate about five miles from Philadelphia, and one mile westward of Frankford.

The Building erected was of stone, fronting, and at some distance from, the public road. The centre building is sixty feet square, and three stories high, having two wings, each one hundred feet long, and twenty-four wide; the whole being roofed with slate. The wings are two stories in height, each containing twenty chambers for patients, about ten feet square, with a gallery or passage ten feet wide. In the basement of the centre building, are the refectory, kitchen, ironing-room, store-room, and pantry, with rooms adjoining, under the wings, for cooking, washing, &c. The remainder of the basement of the wings is divided by arches, serving as repositories for fuel, store-rooms, smoke-house, &c. The first story of the centre building has four large rooms, two of which are appropriated as day-rooms for the patients, and the others for the accommodation of the superintendent and his family. The second story consists of two large rooms, also employed as day-rooms, for the least noisy and convalescent patients, and of four smaller ones, used for the accommodation of the superintendent's family. There are four large and three small rooms in the third storey, for the reception of patients; and four comfortable lodging rooms, with two windows to each, in the garret, besides five large and convenient closets.

In the arrangements of the building, economy and convenience have been studied with equal success. The great extension of the front to the length of two hundred and sixty feet, arose from the desire of affording every comfort to the patients, derivable from that important auxiliary in convalescence, the free admission of light and air. In the construction of receptacles for lunatics, rooms are, in general, placed on both sides of the galleries; into which a gloomy light, and a small supply of air, are admitted by doors and windows at their extremities. The plan adopted at the Friends' Asylum, in this respect, is worthy of imitation. On one side of the long galleries are situated the chambers; on the other a corresponding number of windows: over each door there is a stationary cast-iron sash, fixed in an oblong ventilator, thirty-two by twenty inches, over which is a corresponding moveable sash of wood, containing ten panes of glass. Small doors, about seven inches square, are

fixed in the pannel of every door, secured, as well as the latter, by mortise locks, so constructed that they cannot be opened from within: these serve for the purpose of conveying food, &c. to violent patients, and of frequently examining their situation, without the trouble and disturbance of entering their chambers. The same contrivance exists in the third story of the centre building. The windows of the galleries, as well as of the seven rooms in the third storey, are also provided with stationary cast-iron frames. The lower sashes have panes of glass in them, six by eight inches in size; the upper are without glass, outside of which are wooden frames corresponding in size, which are glazed and hung so as to be raised or lowered at pleasure: this admirable plan unites the advantages of security, neatness, and durability, and removes the aspect of a place of confinement, which iron-bars would necessarily occasion. There is a similar window in each chamber, fifty-four by thirty-four inches in dimension, communicating directly with the external air. Thus a free current of air may not only be made to circulate in the very recesses of the Asylum, but, when necessary, its admission may be regulated by circumstances.

The same may be said with regard to the admission of light, the impressions of which it is necessary to modify according to the excitability and health of the patient. By means of outside shutters, the restless, sleepless, and unmanageable individual may be placed in salutary darkness; while the fearful patient, with irritable senses, all of whose symptoms are aggravated by it, may enjoy the full light, while he breathes the fresh air, of heaven. Experience has proved, had not the scale of the building comprised, in its extensive wings, single ranges of chambers for patients, with the accommodation of ample and airy galleries, together with the advantages derived from the commodious day-rooms of the centre building, that adequate comfort could not have been afforded to the afflicted inhabitants, and that the progress of recovery would have been considerably retarded, if not arrested;—more particularly during those seasons of the year when the patients are necessarily confined to the house.

In the Friends' Asylum the utmost care is taken to guard against the dreadful calamity of fire. The bottoms of the floors, and the sides of the joists, from the first storey to the garret inclusive, are plastered with two coats of mortar, and then ceiled in the usual way: this renders the building more wholesome and comfortable than if it were arched with brick or stone, and almost, if not altogether, as secure from fire. The whole of the basements of the wings, in which are situated the stoves for warming the chambers, is paved with brick: of the same material are the floors of the wash-house, scullery, and about one-third of the kitchen adjoining the fire-place and oven. A

close stove in the dining-room is heated during the time of meals, and, after the early hour of supper, is suffered to expire, and, becomes extinguished before the family retires for the night. The stoves in the day-rooms are guarded with preventives, which render it impossible for the patients to have access to the fire they contain; transverse pieces of iron secure the apertures intended for the admission of air, and the larger doors can only be opened by instruments in the possession of the keepers. To all these precautions is added the careful inspection of the superintendent, after the other members of the family have retired to rest.

A majority of the insane require warmth, although there are many who can bear cold with great impunity, and others are insensible to it, although they suffer by it. Hence a safe, certain, and effectual mode of warming the interior of the wings, has been adopted, by means of large stoves, or ovens, fixed in the arches of the basement of each wing, the heated air from which is conducted by flues into the galleries, and issues at two separate apertures in each, well secured with marble. Separate from this general plan, there is also a warming apparatus, on the same principle, under several of the rooms in each wing, which conducts the warm air directly into the chambers.

At the north-western extremity of the passage in the basement, is an ice-house, for preserving provisions during the summer season, filled from without, but having a communication with the interior. A full supply of water from a never-failing spring, is obtained by means of a forcing pump, placed in a stone building, two storeys in height, and situated at a short distance from the main house: in this building are the seed-room, and a workshop for the patients, provided with all the necessary tools. The water is introduced through leaden pipes, into a large reservoir in the garret of the south-east wing, whence it is conveyed to the kitchen and scullery, and to the warm, cold, and shower baths, fitted up, for the benefit of the patients, in the second storey of the same wing. At each extremity of the wings are enclosed passages and stairs, eight feet broad, leading to the yards. The front of the centre building is ornamented with a lofty portico, having pillars of wood, and abutments of marble. A neat vestibule, in the rear, surrounded with seats, and sixteen feet in length, hangs over the area, and leads to the flower-garden. It is completely enclosed with Venetian shutters, and affords a cool and delightful retreat, where the summer's sun cannot penetrate, and a constant current of air flows refreshingly through the spacious hall which leads into the interior of the building. In the rear, or south-west side of the centre building, there is an area, fifteen feet wide, connected with one of ten feet in width along the north-western wing, and paved with brick. These areas are

surrounded with a luxuriant grass-bank, rising regularly to a level with the vestibule, and surmounted with a beautiful range of low junipers. In the rear of the wings are situated the yards or airing grounds, for the use of the male and female patients, separated by the space in the rear of the centre building, and each containing about five-ninths of an acre of ground, in grass, surrounded by walks. These are enclosed by board fences, ten feet in height, on the top of which is a simple, but effectual, apparatus for preventing the escape of the patients. Boards about eight feet long and eight inches broad, and apparently forming part of the stationary fence, but detached from it, are placed around the whole circuit of the inclosure: these are connected to the fence beneath by hinges. Blocks of wood, about two feet long, are attached to these boards on the outside, at the lower part of which, are rings through which a strong wire is conducted: at the extremities of these wires alarum bells are attached. When the patient, in attempting to escape, seizes one of these moveable boards, it turns inwards on its hinges, the adventurer falls back into the yard, and the appendant blocks of wood, protruding, stretch the wire, and sound the alarum, which is distinctly heard through the building. Sheds, paved with brick, and surrounded with seats, are about to be erected in each yard, for the accommodation of the patients.

The flower-garden, extending from the vestibule to a dark green hedge of cedar, which separates it from the kitchen garden, offers a rich repast to the eye, while it almost bewilders the steps of the visitor by its complex winding walks. The kitchen garden comprises about one and a half acres of ground, and, under the care of a skilful horticulturist, affords abundance of vegetables for the use of the patients. The nursery contains peaches, apricots, and a number of thriving young trees and shrubs. The garden and grounds also afford other fruits.

About twenty acres of the farm are in a state of cultivation, the rest is woodland. Crops of grass are principally grown, with a sufficient quantity of corn and potatoes for the consumption of the family, and some wheat. Six milch cows supply the table with a large quantity of milk and butter, although not equal to the consumption throughout the year.

A shaded, serpentine walk, now skirting the edge of the wood, now plunging into its dark and dependent foliage, and embracing, in its windings, more than a mile, leads over a neat and lightly constructed bridge, to a pleasure-house, which might justly be termed the Temple of Solitude. It is securely founded on a rock, which juts abruptly forth from the declivity of a steep hill, three sides of which are almost perpendicular, and of considerable height. A chasm, formed by nature, in the rock, to the left of the entrance, affords, with the assistance of stones

transversely arranged, a descent to the small valley beneath; a rapid stream, at a few yards distance, producing the melancholy but pleasing sounds of a distant waterfall.

In the Friends' Asylum, in almost every case, less weight is attached to the use of drugs and medicaments than to moral treatment. Varied species of insanity may, at this moment, be found within the walls of the asylum; and hence the difficulty of adapting to each the proper mode of treatment. Towards every description of cases, however, whether the disease be of long or more recent duration, or whether the symptoms are mild or severe, the most soothing and gentle treatment is uniformly extended. The superintendent and matron, with the visiting physician and assistants, are thus enabled, in general, to obtain the confidence, and to produce a degree of discipline amongst the subjects of their care, the accomplishment of which, by such means, is considered an object of primary importance. Having acquired this desirable controul, an opportunity is afforded for minute investigation of the peculiar character of each case, showing the medical remedies necessary to be employed, as well as pointing out those essential moral auxiliaries, which sympathetic feeling and an attentive observation of mental disorders, are calculated to suggest.

With regard to the *habitation* of the patients, in the present case, we have already shewn it to be possessed of every comfort which a high and healthy situation, free ventilation, and ample space, can afford. Here the spacious windows open upon green fields and agreeable scenery, not upon gloomy walls and melancholy objects. In fine, the Friends' Asylum is not suited to produce insanity, or to prevent, rather than promote, restoration to health: it is not intended as a place of imprisonment, but a place of cure.

A most important part of the moral treatment of patients, is the proper *classification* of them. It is obviously disadvantageous to mingle the furious and the melancholy, the imperious and the fearful, the vociferous and the peaceful, the villanous and religious, the clean and unclean, the curable, convalescent, and incurable, together. The patients are divided into two classes: the upper storeys of the wings are appropriated to the harmless, the quiet, and the convalescent; the lower storeys, to the violent, the noisy, and incurable. Each class, both in the male and female department, has a distinct day-room, twenty-two by twenty feet in dimension. When a patient, which seldom happens, is incessantly vociferous, he is removed to an apartment in the fourth storey of the centre building, where his cries are less distinctly heard.

The personal comforts of the patients, in a curative point of view, are of great importance: among these *cleanliness* holds

a conspicuous rank, because it is absolutely necessary to health. In the Friends' Asylum, there is no suffocating effluvium to excite nausea and vomiting. The frequent and in some cases daily use of baths, a strict attention to the apparel and persons of the patients, and the care which is taken to cleanse and purify the beds, chambers, and galleries, give to the sufferers every advantage, both as to health and bodily comfort, that cleanliness can impart.

The *diet* of the patients is of course regulated by their peculiar symptoms. Those who can be entrusted with the management of their own appetite, being about two-thirds of the whole number, assemble at meal-time in the refectory, and eat together. It is then only that the male and female patients meet, and are seated on different sides of the tables. Their food is of the most wholesome and substantial kind, and such as may be found on the tables of the middle class of society, and of respectable boarding-houses. The board of the farmer, though wealthy, does not equal it. There are no meagre-days,—no days set apart for meat; nor is there fixed food on fixed days of the week. Breakfast is served in summer about six, in winter between seven and eight o'clock; it consists of coffee, superfine wheat bread and butter, fish or meat, and potatoes; or, for those who prefer them, boiled milk and bread. The dinner bell sounds throughout the year at meridian. Fresh beef, veal, mutton, or pork, with a great variety of vegetables, according to the season, and occasionally salt meat, followed daily by pies or puddings, constitute this repast. It is seldom, as it is the case in the Friends' Asylum, that we see on the tables of similar institutions, the most choice pieces of meat, and such vegetables as asparagus, cauliflowers, green-peas, tomatoes, egg-plants, &c.: yet even these are as common here as on the tables of the rich. Supper takes place in summer at seven, in winter at five o'clock; and consists of tea, bread and milk, sometimes chocolate, wheat bread, and pickles, varied occasionally with mush, and cakes of different kinds. No spiritous or fermented liquors are allowed. Soon after dark all the patients are secured in their respective chambers, excepting those convalescents who enjoy the liberty of the grounds, and who remain with the family until their usual hour of retiring to rest, which is nine o'clock. The superintendent and his family, and during a part of the year, the managers who weekly inspect the institution, eat at the same table. There is no distinct table for any part of the family whatever. This course is highly gratifying to the feelings of the patients: they find themselves, in a degree, placed upon an equality with those who are labouring for their restoration, and who, if rarely seen, and then only in the character of superiors, they would fear, but not love. Their al-

most uniform exemplary and quiet conduct during meals, is the best pledge of the respect and affection which violent means can never impress on the maniac, and which kindness, sympathy, and benevolence, only can excite.

Those who eat in their respective day-rooms, are prevented from attending the common table from different causes. Some are too voracious; while it is necessary to compel others to take nourishment. As the diet is made conformable to the particular curative plan adopted towards each individual, it is of course necessary to give him his appointed food, according to the prescription of the visiting physician, and remove from him the power of acting in opposition to it. This class, with two exceptions only, eat together in their day-rooms.

Coercion forms a material part of the moral treatment of insanity, and no other point has been subject to more disgusting and enormous abuses. Reason and experience shew the necessity of confining those who are deprived of the use of their reason, in such a manner as to prevent them from injuring themselves or others; but to chain and to beat them, is both cruel and absurd. That coercion is only to be considered as "a protecting and salutary restraint," is the principle adopted at the Asylum. It would, indeed, be a very convenient mode for the keeper to iron every one who is a little troublesome; to indulge the vindictive feelings which the inconsistent, but often half-rational, conduct of the patient frequently excites in his mind by indiscriminate punishment;—aud to lessen his labour with "all the apparatus of chains, darkness, aud anodynes." In the Friends' Asylum this would be impossible. The selection of attendants is so judiciously made, that none would have the will, did they possess the power, to pursue such a course. They are not allowed to apply any extraordinary coercion, by way of punishment, nor to change, in any degree, the usual mode of treatment, without the permission of the superintendent. Some patients are perfectly unmanageable without bodily restraint; and the most material point is to discover the different means of coercion which different patients require. As the most tender method generally produces the best effect, the mildest possible means are adopted; all experience having shown the greater efficacy of mildness. Hence no stripes and blows, no resentment, no return of injury, are permitted. A keeper who, under any circumstances, might return a blow from, or strike a patient, would be instantly dismissed. Here are no iron-bands or collars,—no handcuffs,—no manacles,—no fetters,—nothing to convert the poor patients into felons, and their abode into what Pinel calls "a medical prison." The eye of the patient is not offended by the constant view of iron grates or bars, nor his ear burdened with the rattling and clanking of chains: the

construction of the window frames prevents the former, and the substitution of leather for iron, the latter.

Confinement in a solitary chamber, is found, in most instances, to prove effectual. In certain violent cases, however, it is necessary to adopt more powerful means. The patient is then secluded in a gloomy, rather than a dark room, and when the extremity of coercion is found to be absolutely necessary, a case which seldom occurs, he is confined in a strait waistcoat, and in a recumbent posture, by means of broad leathern belts crossing his breast and legs, with straps affixed, which encircle his wrists and ankles. During the last year, only a single patient was confined in this manner: this was a recent case (May 1825), and perhaps the most violent one that has fallen under the care of the institution. It is a fixed rule to employ coercion no more, and no longer, than personal safety requires; for nothing is more certain than that the cure is retarded by unnecessary confinement. If an individual is furious for a few days, or at particular intervals, he is not, on that account, fettered for years; and the cases are rare indeed, where constant personal confinement is indispensable. At the present time, two patients only are secluded; one an incurable, the other a recent case; and before the admission of the latter, the former was, for more than eighteen months, the only instance of permanent confinement in a chamber. Of those who are permitted the range of the yards, the galleries, and the day-rooms, one only is confined to a chair, and another, her sister, so secured with foot-straps of leather, as not to impede her walking, while she is prevented from passing over the fence, a feat, which she would otherwise accomplish with facility. Thus among thirty-seven patients, one only is permanently secluded, but without other bodily restraint,—one only, labouring under the first paroxysms of mania, is temporarily confined with unavoidable strictness,—one only, is bound, in the common sitting-room, with a leathern belt which admits of almost every change of position,—and only one is prevented from escaping, by means of long and easy straps around the ankles.

Punishments, properly adapted and judiciously applied, are indispensable; but corporal punishment by blows is not tolerated, on any pretext whatever. It is the constant endeavour of the superintendent and matron, and of the attendants, to excite as much as possible the operation of superior motives, and to induce fear, by means of austerity or punishment, only when a necessary object cannot otherwise be obtained. In such cases, recourse is had to the shower-bath, immersion in water, solitary confinement, and, very rarely, to the strait waistcoat or leathern straps.

The proper mode of treating the feelings and intellectual fa-

culties of the variously disordered patients, is one among the most difficult duties performed in the institution. It has been found, that the less notice that is taken of the fancies of the patients, the less disposed will they be to retain them. In the intercourse which the greater part enjoy with the family of the superintendent,—in the constant and general inspection of the superintendent and matron,—and in the management of the attendents,—no practicable means are neglected, which may tend to change the train of thoughts, interest the affections, and remove or diminish the painful sensations of the sufferer. In a word, the Friends' Asylum presents rather the pleasing picture of a large family, united in the bonds of love, than of a receptacle for lunatics.

Nothing can more strongly establish the usefulness of *Occupation* than the fact, that in those asylums for insane, where labour makes a part of the regimen, a greater number of patients recover: and, in the present instance it is fully corroborated, for of 141 patients, admitted into the Friends' Asylum, from the time it was opened in May 1815, up to the month of March 1824, *only eighteen remained in the house without much sensible improvement.* In many cases the disease is nourished from want of suitable occupation and recreation, and the health of the patients is injured by want of bodily exercise. Much attention, therefore, is given, to devise means for employing their time, according to their several capacities. The whole business of the farm, under the regulation and with the aid of the farmer, is performed by such patients as from habit and health are equal to the task. The gardener derives his sole aid in digging, planting, weeding, wheeling, and watering from them. All the wood (for which economy urges the substitution of coal) consumed in the establishment, is sawed, split, wheeled, and piled by the patients. All the water used in the house is thrown into the reservoir by their labour at the forcing-pump. A part of the male patients work at the washing-machines; of the female, at the washing-tubs. Tools are provided in the work-shops for those who can be entrusted with them. The walks, grass-plots, and grounds immediately around the house, are kept in order by them; and the male patients assist in the house work, necessary in their wing. The female patients are, from necessity, more steadily employed than the male, but with less bodily exercise. During the winter, their occupations are not impeded, while husbandry and horticulture, which, at other seasons, employ the other sex, are stationary. The greater number of the women are regularly engaged, according to circumstances, in washing, ironing, house-work, chamber-work, kitchen-work, needle-work, knitting, spinning, &c. The important results arising from this system of occupation, are daily

apparent. Spurzheim remarks, "that, in *all* institutions for the insane, the male patients who assist in cutting wood, making fire, and digging in the garden, and the females who are employed in washing, ironing, and scrubbing floors, often recover; while persons, whose rank exempts them from performing such services, languish away their life within the walls." These remarks do not apply to the Friends' Asylum. It is unjustifiable, and even criminal, to permit any considerations of rank to interfere with the curative process. A monarch, afflicted with insanity, had he the power of choice, would willingly barter his crown, and descend to menial employments, to obtain restoration to reason. Hence, little or no stress is put upon the previous situation of the patient, except as it relates to a due regard to his feelings, and a proper adaptation of labour; and we are taught by experience, that the greater part, when thus employed, never fail to enjoy a more happy state. At this moment, the institution affords the example of a physician strongly interested in horticulture, and continually employed in different vocations within the gardens; a silversmith and a tailor, of course accustomed to sedentary occupations, are particularly industrious in cutting wood: a merchant may be seen at the washing-machine, and a thrifty farmer scrubbing the floors of the galleries. Females, delicately reared, accustomed at home to little manual labour, may be found, willingly and cheerfully, assisting in the kitchen, or in the chambers. In fine, the idea ought to be universally eradicated, that strong and vigorous patients, on whom moderate manual labour would produce the happiest results, ought to be suffered to loiter away their time in idleness and apathy, brooding over and increasing their delusive conceptions, merely because they chanced to have been born and educated in a particular rank of society.

Recreation, as well as occupation, is afforded to the patients; and various means are taken to withdraw their minds from injurious and melancholy musings: among these may be enumerated, long walks around the grounds, riding through the country, reading, writing, &c. One-fourth of the patients, five of whom are considered incurable, are, during the day, under no personal restraint; and have full liberty to employ and amuse themselves within the precincts of the farm; some of these associate altogether with, and are almost considered a part of, the superintendent's family. Others are daily invited into the parlour or office, where they enter into conversation, or peruse the newspapers. Many of the patients attend the Friends' Meeting at Frankford, twice in each week.

The immediate superintendence of the Asylum is conducted on principles which cannot fail of bringing forth good fruit, where the parent stalk is not irretrievably blighted. It is not

guided merely by a sense of duty, as the agents of the contributors, but by the conscientious and religious feelings which ought to bind all the children of men together in bonds of brotherly love. Authority and order is maintained rather by kindness, condescension, and indulgent attention, than by severity; the afflicted are treated as rational beings, not as brutes. The superintendent and matron never sit at table without being surrounded by lunatics;—one or more are constantly in the family parlour;—not an hour in the day are they separated from some among them; and in return for the kindness shown towards them, and the feeling manner in which they are treated, the patients almost uniformly behave with propriety, and many of them cherish towards their benefactors the warmest gratitude, affection, and respect. A striking proof of the power obtained over the patients, almost exclusively by mild treatment, occurs on every Sabbath evening, when they are all, both male and female, with the exception of the one or two permanently secluded, collected together in their respective day-rooms, where a portion of the Scriptures is read to them. It is seldom that any interruptions take place; on the contrary, the silence and quiet that reigns around are really astonishing. The exemplary order and harmony which prevail among the different members of the family, and the economy and neatness manifested in its domestic regulation, are worthy of peculiar notice; and a great share of the present prosperity of the institution must be attributed to the conscientious and judicious discharge of their duties, by the Friends who reside at, and have the immediate superintendence of, the Asylum.

The officers of the institution consist of twenty managers, a treasurer and clerk, who are annually elected by the contributors. The managers appoint the superintendent and matron, the visiting and consulting physicians, and the officers and assistants employed in the service of the establishment: they are so classed that three of their number inspect the Asylum weekly, on Saturday, each visiting manager serving two months.

No patients are admitted excepting those who are members of the Society of Friends, or professors of their doctrines. The lowest rate of board is two, the highest five, dollars per week; the patients to make compensation for all damages done by them to the glass, bedding, or furniture *, or to pay, in lieu thereof, a small addition to their board. At the present time, the patients amount to thirty-seven, which is a greater number than at any former period; with four keepers, or about one to every

* It is a remarkable fact, that, from the opening of the institution until the year 1824, a period of seven years, the whole amount of charges of this nature against all the patients, was only $ 30 19 on account of glass broken, and $ 27 17, for damages done to furniture.

nine. Every patient has a distinct bed and apartment;—neither double beds, nor the placing of more than one patient in a room, being allowed. More than fifty patients could be thus comfortably accommodated.

The near relations or particular friends of patients are permitted to see their connections when circumstances will admit; but, in most cases, such visits are productive of more evil than good. Patients are frequently more unsettled and ungovernable for some time afterwards. The general admission of visitors would be improper and injurious: patients never ought to be exhibited to gratify the curiosity of strangers. No persons, therefore, are admitted to the apartments occupied by patients, unless accompanied by a manager; but, on application to the superintendent, they may obtain permission to view the other parts of the building and the adjacent grounds.

From the opening of the Asylum, in May 1817, to the month of March 1825, the number of patients admitted was - - -		158
Of these have been discharged—recovered - - -	53	
Ditto ditto much improved - -	23	
Ditto ditto improved - - -	17	
Ditto ditto without apparent change -	9	
Died - - - - - - -	21	
Remained in the house - - - - -	35	
	—	158
Average annual number of patients during eight years - -		19¾
Average ditto during the last five years - - -		31½
Average ditto during the year ending in March 1825 - -		33
Number of patients in the Asylum, May 20. 1825, Females, 18—Males, 19 - -		37

Frankford, May 20. 1825.

ART. V.—*Affusions of Cold Water employed in a Case of Epilepsy,—a Case of Dr* HAYCRAFT, *late of Birmingham.* In a Letter to the Editor.

SIR,

THE following particulars of a case that fell under the observation of Dr Haycraft of Birmingham, may not be uninteresting to practical men. You will, I think, find them well worthy of insertion in the Edinburgh Journal of Medical Science. They have been communicated in a letter from that intelligent physician to the writer. J. C.

W. D., from the report I heard, was, at the age of five years, seized with an epileptic fit, which lasted seven or eight

hours, followed by a state of great depression, which lasted two days. Afterwards he sustained several attacks, usually every four weeks; these paroxysms generally lasted six hours. When I saw him, at about his seventh year, his growth appeared to have been impaired, particularly the limb of the left side, which, during the fits, were usually convulsed. The powers of digestion, &c. were lessened. I gave orders, that, should he experience a similar attack, which was expected in the course of a week, I should be sent for. Accordingly, on receiving the expected notice, I visited him; and, on arriving, found him in a state of apparent insensibility; the limbs and muscles of the left side, as well as the muscles of the face, violently convulsed; the heat and redness of the face and upper part of the body greater than usual; profuse perspiration; pulse not much accelerated, but strong and full. I immediately ordered a quantity of cold water to be procured, and, the child being stripped naked and placed over a large tub, for the space of fifteen minutes, poured constantly water from bowls over the whole of the body, particularly the face, hands, head, and shoulders, &c. at the end of which time I perceived the colour and heat of the face, and other symptoms, diminish: upon which the convulsive motions ceased. Flatus was observed both ways. Soon afterwards, the body appearing chilly, with coldness of the feet, I ordered him to be placed between blankets, when a violent trembling, similar to that of an ague, took place, and lasted a short time, followed by reaction with general increased heat, which terminated in a few minutes in general sweating. He slept well, and the next day, to the surprise of his friends, was as well as usual. I then ordered the compound calomel (Plummer's) pill in alterative doses. His subsequent history I must give principally from hearsay, as I soon afterwards left home for the continent. About six weeks after, he had another paroxysm, which, by my directions, was treated in the same way; it lasted half an hour: after that he had an intermission of six months. He left off the pill. Afterwards, at irregular intervals, he experienced slight attacks. At an after age, he complained of pain of his head. The medical man who attended him pronounced the disease a brain fever; and, the following day, he experienced an attack similar to that above described, very violent, and which lasted seven or eight hours, and from which he never recovered perfectly. He lived, however, two days, with locked jaw, eyes suffused and red, complete blindness, edema of the left arm, and loss of speech.

I need not explain to you (Dr Haycraft continues), the *ratio medendi* according to which I ordered the application of the cold water, as you are acquainted with my views on this subject. I was, however, partly determined, by having formerly ex-

perienced similar effects produced by the same powerful agents in milder cases, and partly by observing the concatenation of conditions existing in such cases, consisting (to speak only of the most prominent) of undue distribution of the animal heat, of the blood, and of the nervous irritability to the upper parts of the body, particularly to the head. I was in hopes that by shortening the paroxysm, which the vigorous application of cold water certainly does, I should break, as it were, the habit of the disease; and that by giving the mercurial pill, I might improve the functional state of the viscera, or the disorders on which irregular excitements (often) depend.

ART. VI.—*Singular case of Phthisis Laryngea, contradictory to the ascribed healing powers of Herring-Milt, which had been unsuccessfully employed in the cure of this disease.* By Dr FISCHER, District Physician at Oels in Silesia *.

CIRCUMSTANCES allow me to deliver the following relation, in contradiction to what Sœmerling relates in Hufeland's Journal, September 1821, page 122, of the celebrated herring-milt.

Lehemenn, a tailor in Oels, about 30 years of age, requested my attendance upon the 1st day of June last. I was soon persuaded that his disease was organic obstruction of the windpipe, and that his death was near. According to his own account, he had received medicines, but not often, from a previous medical attendant, but could not mention their names, although he averred, that, for the last nine months at least, without interruption, he had swallowed a herring-milt every morning; and he asked me if it was necessary to continue this farther. I allowed him with great pleasure. But as he complained after eight days, that he could scarcely employ this longer, on account of the great pain which the herring-milt occasioned in the mouth and throat already covered with fungi, I took pity on the poor man on account of his desire for relief, and declared that the operation of this medicine would be nothing weakened or interrupted by a pause of some days, till the mouth and throat again became well. Nevertheless, because his hopes rested upon this remedy exclusively, he troubled himself still farther with its employment. The extract of hyoscyamus with digitalis, and subsequently hydrocyanic acid, were the only means which I directed to him, for the relief of his sufferings. When I visited the patient upon the 21st of June, about 2 o'clock in the afternoon, he was again very much cast down, and in great distress of mind. The

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* From Hufeland's Journal.

half of a herring-milt lay upon a plate on a stool, which stood beside his bed. Promising him relief from a medicine which I had prescribed to him, I endeavoured to raise his spirits afresh.

About 4 o'clock in the afternoon, the patient, under the pretence of arranging his papers, sent his nurse to bring him a small box out of a chest; then he dispatched his wife to bring the medicine from the apothecary's shop, and, during their absence, he cut the right radial artery across. About half an hour after, a surgeon was sent for; and as often as he applied the bandage, the patient tore it away.

I think proper thus to put on record the last moments of this man, partly, in order to shew that there are suicides which merit the most serious compassion; partly, because it is a remarkable psychological phenomenon. Hope, and the desire to live, must have struggled with the dread of approaching death; yet the event was a resolution to die in a voluntary manner, even to the very moment of the completion of self-destruction.

The dissection of the body, forty-one hours after death, brought to view the larynx and trachea in a state of inflammation. From the separation of their internal membrane to the division into the bronchial branches, they were every where covered with a purulent slimy fluid. A tea-spoonful of completely purulent fluid was found in the ventricles of the larynx. The thyroid cartilage was so soft that it could be cut asunder like a piece of cheese. The lungs were greenish blue and quite of a pulpy softness. No proper purulent cavities were found in them, although, particularly in the left lung, there were many small knots, out of which, upon an incision being made, a thick yellow matter could be pressed. In this case, therefore, is an evident example of tracheal inflammation, and of the herring-milt having been employed with the greatest confidence, for a sufficient length of time daily, from nine to twelve months, yet without having produced any benefit.

Ludwig Frank is of opinion (Repertorio Medico-Chirurgico per l'anno 1822), that the milt of the herring might become beneficial in the state of chronic inflammation of the trachea, but no longer, should suppuration supervene; and Hufeland relates (in his Journal of September 1821, p. 122) two cases, where this remedy, by itself alone, must have cured a tracheal inflammation, though not of the most aggravated form. What was the condition of our patient, when he undertook the use of the herring-milt, cannot be ascertained; and this difficulty is increased by the consideration, that in phthisis trachealis the suppurative stage usually continues longer, and, consequently, the restoration of the affected organs must also continue longer, than in phthisis pulmonalis tuberculosus.

Art. VII.—*Treatment of Glossitis, as exemplified in several cases recently recorded by foreign practitioners.*

[Glossitis is acknowledged by practitioners to be of comparatively rare occurrence. It is, however, an interesting circumstance, that several cases of this disease should have been published within these very few months in different foreign journals. We shall, therefore, for the information of our readers, throw them together under the form of one article.—Ed.]

Case I.—*Recorded by Dr Maillier* *.

A vine-dresser of Flonville, a man of tall stature, of sanguine temperament, of perfect health, and accustomed, by his occupation, to support all the inclemencies of bad weather, was seized, early in February 1824, with a very severe coryza, which did not, however, prevent him from attending to his ordinary occupation.

10*th February.* In the course of this day, he felt in his tongue an unaccountable insensibility. Soon afterwards, this organ attained so large a size that the buccal cavity could not any longer contain it. This state increased in the evening and following night. At two o'clock in the morning I found him in the following state: The patient was seated, not being able to keep his bed: the pulse was full, hard, very frequent; the skin was dry and hot, except the face and the neck, where it was covered over with a cold sweat; the tongue was very much swelled, and red; it was pulled forward about an inch beyond the inferior row of the teeth, and was the seat of acute sensibility; a thick saliva flowed abundantly upon the clothes of the patient; the palate was hung round with an extremely viscid mucus of a greenish yellow colour, and this mucus also covered the posterior and superior surface of the tongue. The patient felt a very acute pain and heat over the whole extent of the back part of the mouth; he was thirsty and hungry: deglutition and speech failed him. Fourteen ounces of blood being taken from his arm, barley water with oxymel were given, for the purpose of keeping the mouth moist, while a large cataplasm, formed of the crusts of bread and the decoction of marsh mallows, was applied under the neck.

At three o'clock in the evening the patient was in the same state; the bleeding had not given any relief. Twelve leeches were applied to the neck and under the chin; gargles were used,

* From the Jour. Univ. des Sciences Med. for July.

and a continuation of the other means that had been employed: several lavements of fat broth were administered.

The next day the patient was in a state of sensible amelioration; he had recovered the use of speech; the swelling of the tongue had much diminished; deglutition began to be restored, so as to allow him to partake of some rich broth, and a decoction of honey and barley water. The application of the cataplasm to the neck and under the chin was repeated.

On the 13th, the affection had totally disappeared, and the health was reestablished.

Case II.

Another case has been just described in a German Journal *, of which the following is an abstract:

The patient, thirty-four years of age, and of a strong constitution, was seen by Dr G. on the 4th November last, at a time when there was a great prevalence of inflammatory and rheumatic pains of the throat. The earliest symptoms were a severe shivering, which lasted an hour, and which came on after rising from his bed, succeeded by great heat, a peculiar dull pain, and feeling of weight in the root of the tongue, as if a lump of lead were in the mouth; there was also an immovability of this organ, the attempt to put it out causing great uneasiness. Deglutition and the power of speaking were, as might be expected, much impeded. Violent pyrectic symptoms succeeded, with a distressing thirst, and great headach. None of the parts adjacent to the tongue shewed any inflammatory symptoms. The medicines used were a gargle of decoction of althæa and nitre, with a grain of tartar emetic;—barley water, with oxymel, to be kept occasionally in the mouth, and an opening enema.

On the following morning the tongue was much swelled, dry, hard as a board, red, extremely painful, almost filling the mouth, which was half opened, and could not be closed, thus preventing the patient from speaking, or from swallowing much of the fluid, which he required, to allay his burning heat and thirst. Inspiration was performed with difficulty; there was great anxiety, while the pulse was quick, full, and hard. Twelve ounces of buffy blood were drawn from the arm; warm and emollient vapours were inhaled, and bland liquors were taken often, but in sparing quantities.

In the evening the symptoms were still more severe, though the pulse abated in its fulness and hardness. The tongue, which was still dry, red, and exquisitely painful, became projected from the mouth; the jaws were immovable. The pa-

* Grafe and Walker's Journal fur Chirurgie, band vii. heft 2.

tient was tormented with heat in the inflamed part, and with thirst, yet could take no fluid. All the other concomitant symptoms of pyrexia were increased. Fifteen leeches were applied under the chin, and a blister over the bites, and every quarter of an hour injections, by means of a syringe with a long pipe, were made into the mouth, consisting of decoction of marsh mallows and nitre. Cold applications of nitre and sal ammoniac were also made to the tongue, and the inhalation of warm and emollient vapours was continued every two hours. The enema was repeated.

On the 6th, after the patient had passed a sleepless and restless night, the fever began to abate, and though the deglutition was still impeded, the thirst was less distressing. A tough slime was discharged from the corners of the mouth. On both edges of the tongue, which in other respects was as before, were two white and moist streaks. In the evening, the patient, under a continuation of the treatment employed, was much better, a copious flow of saliva from his mouth having diminished his distress. The symptoms gradually continued to amend, and on the 14th he returned to his usual occupation.

CASE III.—*Recorded by Dr Olivet, Physician at Montero.*

Michael Thomas, sixty-eight years of age, labouring daily as a mason, was of a strong constitution, and in comfortable circumstances. He had always been healthy, till about a year before, when both his eyes became affected with cataract; upon which an operation was proposed to be performed in the spring of the year 1825. As, in the mean time, he could see nothing, he passed the winter in complete inactivity, and made use of a highly nourishing diet. He became fat, and usually remained above twelve hours a day in bed.

Upon the 23d of January, he complained of a pain in his throat, which was red within, the tonsils being much swollen. The fever was not very violent, and he suffered most from the difficulty of swallowing. I placed ten leeches at the angle of each jaw, by which he lost a considerable quantity of blood; and I prescribed for him a mild gargle, and a foot-bath, composed of the milk of almonds with mustard.

Next morning he found himself better, with a considerable appetite for food. I had warned him to be regular, and to guard himself carefully from cold. Almost immediately after my visit, there was a fall of snow. Towards evening, the patient ate heartily, drank wine, and complained of his throat. He could not sleep during the night; and perceived at the root of his tongue a sense of pain and constriction. He spoke through the nose; swallowing became difficult; and afterwards the tongue

appeared to be gathered up into a mass. The breathing became oppressive, so that he was forced to sit upright, in order to avoid suffocation. Towards morning, the violence of the symptoms increased, and I found him sitting in bed in the greatest distress, without being able to swallow a drop of fluid, or to speak a word. His face was suffused, and expressed extreme anxiety; his skin was covered with sweat; the pulse weak, quick, and small. He could only half open his mouth; the tongue filled the whole cavity completely, and was only held back by the two rows of teeth, which could not be separated to a sufficient distance to allow it to protrude. I was merely able to press down the point of it a little by means of a spatula. I instantly made two incisions upon its dorsum from behind forwards, which were from 4 to 5 lines in length. There flowed from these only a small quantity of blood; and when I wished to repeat them I was unable to press down the tongue for that purpose. I therefore made a puncture with a lancet upon each side of the frenum, and drew from thence a much greater quantity of blood, but still not what was sufficient; so that I repeated the operation three times. In order to promote the discharge, I injected warm water into his mouth; and in two hours the patient was so much relieved, that he was able himself to wash out his mouth with milk. I then applied a large plaster of cantharides, with the use of the foregoing means, and a purgative glister. This day, which the patient got over, was still full of suffering. He slept a little, and in the evening, when he attempted to speak, he was intelligible. From this time, the symptoms diminished every day, and he was soon completely restored. During his sickness, the extraordinary dryness of the throat and the impossibility of moistening it produced extreme distress.

Case IV.—*Recorded by the same.*

Some years ago I had a patient in charge, of a scrofulous habit, and who, for eight days previously, had been affected with glossitis. She swallowed with difficulty, and could scarcely breathe. I found her in an erect posture. When I compressed the tongue it appeared to me to be full of serum; in other respects the patient had little pain, and no fever. I applied a blistering plaster to the neck, ordered an emollient gargle, and a mustard foot-bath; and, some days afterwards, this woman came to my house quite recovered.

In publishing these cases, it is my object to draw the attention of physicians to the utility of taking blood from the tongue. It is not always possible to make an incision on the dorsum of

that organ, and, even when it is possible, it is not my opinion that it should be applied; because a sufficient quantity of blood cannot be made to flow from it. It was for this reason that I resolved, in Michael's case, to open the sublingual vein, by which means I obtained a full venous stream of blood, and I inserted the instrument three times in order to increase the effusion.

Two years ago, an epidemical angina prevailed in several villages of the neighbourhood. The inhabitants went in a mass to a quack, and were let blood from the veins under the tongue, either in order to obtain a cure, or to protect themselves from the sore throat. Much relief was thus obtained, and I have found, that, when the sick were permitted to lose a considerable quantity of blood, bleeding after this manner operated very beneficially

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Art. VIII.—*On the Employment of Caustic as a means of arresting the Pustules of Variola.*

THE expediency of employing caustic as a means of arresting the pustules of variola, is a question which at present is exciting much attention in France, though it may be doubted if it will ever be considered as of equal interest in this country. We shall, however, devote an article to the object of presenting to our readers the real state of the argument, commencing with M. Velpeau's view, as it was stated by him in a memoir read to the Philomathic Society of Paris.

According to this physician, the application of caustic has, in eight instances, extinguished variolous pustules, without inconvenience to the subjects of them. Five patients were treated after this manner in the General Hospital of Tours, under the direction of the principal physician Dr Bretonneau, and other three occurred in the practice of M. Velpeau. The first case of the kind was that of a soldier. On the third day of the exanthema, the pustules being laid open with scissors, and touched with nitrate of silver, such of them as had been strongly cauterized, and to their centre, were arrested within twenty-four hours after the operation, and early on the following day were dry; whilst those which had not been so deeply cauterized merely underwent a modification.

The subject of the second treatment was a young man who was cauterized the first, the second, and the third days of the eruption, with the nitrate of mercury in one arm, with the ni-

trate of silver in the forehead, and with the hydrochlorate of antimony in the temples. The pustules which had been touched the two first days became extinct; those which had been touched on the third day only were less so;—the antimonial caustic appearing to be less efficacious than the other applications.

In the third and fourth instances, two brothers of seven and eight years of age had been attacked with variola in the eighth day of vaccination, and were cauterized on the three first days of the eruption with the nitrates of silver and of copper. In the case of these children, the pustules touched on the first and the second day were indistinctly arrested; nor did the cauterization which was practised on the third day succeed so completely.

In the fifth case, the pustules were touched on the fourth day, and for the sake of instituting a comparison, the nitric and sulphuric acids, the nitrate of silver, and the butter of antimony, were employed. None of the pustules were completely extinguished, but all of them underwent a favourable alteration.

Lastly, in the three cases which were exclusively treated by M. Velpeau, the nitrate of silver was alone employed; the cauterization was restricted to certain parts of the face, and it was observed, that, in all the spots touched by this chemical agent, the specific inflammation was extinguished on the same day, or at the latest, on the following day after the employment of the caustic.

Such are the facts comprised in the memoir of M. Velpeau; and from these experiments he is disposed to infer, 1*st*, That the pustules of variola, strongly cauterized before the fourth day of their existence, may be extinguished in such a manner as to be converted into small eschars, which dry with the greatest rapidity; 2*dly*, That all the eschars thus induced disappear without leaving any traces upon the skin; 3*dly*, That to the present moment these trials have never been attended with any bad effects. And in further support of this conclusion M. Velpeau brings forward certain experiments made at Tours, during a period of five years, as well as at two public hospitals of France, from which it appears, that furuncles, vaccine eruptions and the pustules of smallpox, have often been treated in this manner with considerable advantage. Professor Dumeril has also long employed this mode of treatment with the greatest success; but he prefers to every other caustic the nitrate of silver, when pure and completely deprived of its water of crystallization.

M. Velpeau has likewise made a considerable number of observations upon living and dead subjects, with the view of discovering the precise seat of the pustules of variola. These he refers to the sebaceous follicles: hence he recommends us not to

be content with merely burning the surface of the pustules, but likewise to penetrate into their interior with a stilette of gold or silver, charged with caustic, in order, as he adds, to act at the bottom of this small organ as well as upon its surface, without which there is a risk that the proposed object will not be completely attained.

M. Serres, a physician of the *Hôpital de la Pitié*, has likewise, in a memoir, given an account of his mode of treating the pustules of variola, which he names the *Ectrotic* method, from the Greek word ἐκτιτρώσκω, *abortum facio*, in allusion to the *abortive* attempts of the pustules, under this treatment, to arrive at maturity. The mode employed by M. Serres may now be explained; some part of it certainly appears, as will be shewn in the sequel, liable to objections, that do not apply to the far more scientific mode in which M. Velpeau has succeeded in exterminating pustules.

With M. Serres, the hint of cauterizing variolous pustules is alleged by him to have arisen from the similar mode which he has been accustomed to adopt of arresting the progress of venereal pustules. One great advantage, as he conceived, which resulted from this treatment in variola, was, that, by thus obviating the swelling of the head and of the neck,—regions in which the cellular tissue and bloodvessels abound,—we might prevent the attack of acute encephalitis. A similar advantage was anticipated regarding the organ of sight, which cauterization might prevent; and, on this subject, he remarked, that variolous pustules are never developed upon the cornea, the sclerotic coat, or the conjunctiva; but that when they exist, it is upon the free edge of the eyelids. This edge, being then swelled, is turned inwards, and these pustules finding themselves in immediate contact with the globe of the eye, are formed upon its membranes by a direct communication. Other advantages resulting from the ectrotic method, consist in the readiness with which it is applicable to the pustules of the tongue, of the velum palati, and of the root of the palate; to say nothing of its use in removing from the face those marks which would otherwise be indelible.

The cauterization of pustules may take place in two ways; either in an insulated or collective form. In the first case, the nitrate of silver is employed, being melted and drawn out in the form of a pencil; and commonly the application of it is renewed two or three days afterwards, if the first cauterization does not suffice.

In a collective cauterization of the pustules, M. Serres dissolved the nitrate of silver in water, and then varied, according to the effects which he wished to obtain, the concentration of the solution. Fifteen grains of the nitrate, dissolved in a spoon-

ful and a half of water, formed a feeble cauterization: this he expressed as *the first degree.* Thirty grains of the nitrate, the quantity of water being always the same, he named *the second degree*; and forty-five grains he named *the third degree.*

The solution being made, a dossil of lint was soaked in it, and, at two different times, the whole surface of the pustule was anointed.

Different effects are said by M. Serres to be obtained, according to the time when the nitrate of silver has been employed. On the first day of the eruption, the skin is said to lose some little of its ordinary tension; on the second day, it is only on the circumference of the pustules that the projection is evident; on the third and fourth days the swelling is general. But, by a very remarkable effect of the cauterization, the tumefaction which always accompanies the confluent variolæ disappears with a very great promptitude. Yet, since the cauterization itself was found to produce an artificial, puffy swelling, which might often form an obstacle to the good effects which it procures, it was thought proper to apply a certain number of leeches to the base and to the sides of the neck. The time selected for this application was from six to ten hours after the cauterization. The number of leeches was proportionate to the degree of irritation, and to the strength of the patient.

Towards the fifth day of the cauterization, the scab is said to crack, shewing on its surface small longitudinal fissures; this effect, however, only taking place in the regions where a great quantity of cellular tissue is found. But often the eschar remains stretched and resisting. Then, if the embrocations with olive oil do not make the tension cease, slight scarifications on its surface are made with the lancet. They then produce, at the natural clefts, the overflowing of surrounding parts. The treatment of cauterization is alleged to vary according to different circumstances; thus, the number of leeches, and of their application, will depend, more or less, upon the swelling of the head and of the neck; and, at the same time that they are employed, two large emollient cataplasms are placed on the legs and the thighs, in order to facilitate the eruption on these parts, and to render it abortive upon the others; they are replaced by sinapisms, if the effect is not sufficiently well marked.

At the moment in which the patients feel the pricking and the smarting which follow the application of the nitrate of silver, M. Serres places upon the cauterized part compresses dipped in cold water, or in any emollient decoction; they are left for five or six hours, and are moistened from time to time.

In short, when the eschar is become black and tense, embrocations are used with the oil of olives and of sweet almonds. The transparent cornea, and the free edge of the eyelids, are

directed to be moistened with an emollient collyrium. A gargle of the same nature, and slightly acidulated, is said to agree with the cauterization of the pustules of the velum palati, of the palatine arch, and of the tongue.

Such is the view of M. Serres. A physician at Versailles, M. Noble, has likewise given his assent to this new practice. In the hospital of this city, thirty patients had been cauterized; in some, the pustules were opened, and the nitrate of silver applied in substance; in others, the pustules had been washed over with a solution of the nitrate of silver. This application had been either made on the first and second day after the eruption, or, as in several cases, even thirty days after. It is added, that all the patients were cured without any accident, and no scars remained.

M. Majendie has been also inclined, from his experience, to think favourably of cauterization; while M. Serres has added, that, as smallpox was dangerous in proportion to the number of its pustules, such danger was in due measure prevented, by obviating or checking their eruption, or by their extinction when they had appeared. But against this view it has been objected, particularly by M. Hussan, that, in three cases at the Hôtel Dieu, where cauterization had been used, the patients had died. Instances were even adduced, in which the pustules of patients, whether they had lived or died after cauterization, had not been removed by this mode of treatment.

Again, this debated question, regarding the propriety of cauterization, has met with most able comments, in a memoir of M. Meyreaux, read by him to the Royal Academy. He very properly, however, considers cauterization as subordinate to the general treatment of the patient. With regard to the mode of using the caustic, he condemns the plan which he alleges to have been commonly adopted, of washing the part with a solution of nitrate of silver, on the ground, that it acts upon the sound, as well as the unsound parts, and that the development of the crusts still goes on under the black crust or mask. His plan is partly similar to that used by M. Velpeau; it is, to open the pustules one after the other, and to apply to them a piece of lunar caustic, in the shape of a pencil *. He adds, that, in order to be beneficial, cauterization must be practised on the first or second days of the eruption; that it only becomes useful when the inflammatory action has been subdued, either in the principal viscera, or in the skin. When the inflammation of these parts predominates, the general re-action becomes more intense, and the sup-

* M. Meyreaux affirms (and no one has hitherto contradicted him), that, if we pierce a pustule with a very fine needle, and allow the Voltaic fluid to penetrate through it, the pustule will be extinguished.

puration of those pustules which have not been destroyed is more abundant. M. Meyreaux likewise recommends this plan of treatment to cases of boils, venereal pustules, the chicken-pox, and other eruptive diseases.

From the cases of M. Damiron, it is also proved, that, immediately after the pustules appear, cauterization produces their absorption, and is not followed by any ill consequences. On the fourth day it is far less efficient, since the pustules take their course under the eschar; however, the cicatrices are not so deep as those produced by confluent smallpox, if left to itself, nor does cicatrization prevent the supervention of encephalitis.

Such is the state of the argument at present on the Continent, which, it must be admitted, is very favourable on the whole to cauterization. In this contest, British practitioners have not yet taken a decided part. One circumstance, however, remains to be added,—that this practice, which, in France, is said to be novel, has been long since adverted to by our illustrious countryman Jenner.

II. PRACTICE OF SURGERY.

ART. IX.—*Case of extensive Tumour successfully extirpated from the Muscular Fascia of the Neck.* By GEORGE BELL, F. R. S. E., Fellow of the Royal College of Surgeons, Edinburgh and London, Surgeon Extraordinary to the King, and Surgeon in Ordinary to His Majesty's Household for Scotland.

THE Surgical Anatomy of the head and neck is a subject interesting to every practitioner. Supplied as these parts are with numerous bloodvessels and nerves essential to life, tumours, which frequently arise upon them, and the accidents to which they are exposed, cannot fail to excite the anxiety of every surgeon, how skilful and decided soever he may be, who is called upon to operate on the one, or to undertake the treatment of the other. The older surgeons, who were unacquainted with the fascial anatomy, were generally unwilling to interfere with those tumours of the neck which had acquired a considerable bulk, or which seemed to be attached to the subjacent parts; and more modern authors, who ought to have been better informed on the subject, have contributed to confirm and perpetuate this

unwillingness, by exaggerated and romantic statements of the difficulties and dangers of making the attempt to remove them. But at this time, although the anatomy of these parts, in a state of health, was well understood, yet, neither had the pathology been properly explained, nor the diagnosis between tumours situated above, and those lying under, the fascia been distinctly ascertained. The writings, however, of Mr Hunter and Dr Baillie have removed many of the difficulties which formerly existed, and which impeded the improvement of this part of surgery; and more recently the Treatise of Mr Colles on Surgical Anatomy, and of Mr Allan Burns on the Surgical Anatomy of the Head and Neck, have much simplified the treatment of tumours on the latter, and pointed out, with a considerable degree of certainty, those which may with safety be removed, and those which ought not to be meddled with.

Tumours, situated *above* the fascia, generally project considerably beyond the surrounding parts, and may be moved readily in all directions. A tumour, under these circumstances, may be easily removed, and when means employed to promote its absorption or suppuration fail, it ought to be extirpated before it attains any great size, lest it degenerate into a worse disease.

Tumours, *under* the fascia, are harder, more diffused, more flat, and less moveable. Many of these may be removed with safety; but when they dip down and involve the carotid artery, internal jugular vein, or nerves of the neck, they ought not in general to be disturbed. But there are cases where the original disease has been a moveable lymphatic gland, exterior to the fascia; which being neglected, suddenly degenerates, upon an access of fever or of ill health, into a tumour *mali moris*; acquires rapidly great increase of bulk, and ultimately firm and extensive adhesions to the parts underneath.

These tumours sometimes attain so great a bulk, and assume so formidable an appearance, that the surgeons of former times would scarcely have ventured to remove them; and even modern surgeons would hesitate, unless the knowledge of the distribution of the fascia, and of the morbid changes of structure to which the different tissues are subject, above alluded to, enabled them to decide how far these were originally superficial or deep seated; or have, during their progress, acquired such deep seated connections, as to render their removal inadmissible.

In reference to this subject, it has occurred to me, that the relation of a case apparently very formidable, both as to the size and situation of the tumour, might not prove uninteresting to some of our younger professional brethren, and induce them occasionally to undertake the management of tumours, which, if left

to themselves, or not removed by the knife, would certainly soon prove fatal.

In the month of October 1813, I was consulted by an eminent surgeon in the north of England, respecting his lady, who had a small glandular tumour just over the angle of the jaw, quite moveable, free from pain, and about the size of a large field bean. This enlarged gland had been present many years, and existed at the same time when a gland was removed from the edge of the sterno-mastoid muscle, of the size of a plover's egg; and afterwards, when two others, at different periods, were extirpated from the parts in the neighbourhood, by a very judicious and careful surgeon. The wounds all healed kindly, and this smaller gland was allowed to remain, as it was small, and excited no uneasiness. At this period, however, (October 1813), it began to increase in size, and her husband was desirous that I should remove it, as I happened to be at his place of residence on other professional business. But, on inquiry, it was discovered she was pregnant, and, as the operation might interfere with her general health during the three or four first months of pregnancy, and there seemed to be no necessity for an immediate operation, it was delayed until I should return to that part of the country in the course of the winter or spring.

Towards the beginning of 1814, the tumour increased pretty equally in all directions, and continued to do so until her confinement in the fourth week of May, when its growth became so rapid, that her husband brought her to Edinburgh, as soon as she could venture to travel so great a distance, as 140 miles, being in the seventh week from her confinement. No time was to be lost; for, during the space of three days only, which elapsed from her arrival in Edinburgh, an obvious increase in size could be perceived. I requested the opinion of Professors Russell and Thomson, Mr Wardrop, Mr Law and Mr Joseph Bell, and laid before them the following notes for their consideration.

"The tumour * extends from one inch behind the mastoid process, below the ear, the ala of which is considerably displaced or raised by it; over the angle of the jaw, and over the whole site of the parotid gland, to within an inch and a half of the external canthus of the eye; immediately over the edge of the os malæ, downwards, to the angle of the mouth; then crossing the line of the lower jaw, about one inch from the centre of the chin, it proceeds in a direction parallel with a line drawn from the chin, to the top of the sternum, until it touches the sterno-mastoid muscle, which it then crosses, and, forming a circular sweep, ascends towards the mastoid process, covering the sterno-mastoid

* See the accompanying Plate, after a Drawing by Mr Syme *jun.*

muscle, during the whole remaining part of its progress: the circumference amounting to twenty-nine inches at its measureable base.

Mrs R. has never complained of any pain in it, and it is inconvenient from its bulk alone. I presume it might weigh, if removed, betwixt three and four pounds.

For so large a tumour, it is moveable; the whole mass moves together, upwards, downwards, and to each side, when taken hold of, and the head kept steady.

All the motions of the head are entire, particularly those in which the *sterno-mastoidei* are concerned, and deglutition and breathing are in nowise affected; the tumour pressing neither on the trachea nor œsophagus, excepting when she lies upon the left side.

The external jugular vein seems to dip below the tumour, or at all events to lose itself in, and not to pass over, the tumour.

The pulsations of the temporal artery may be distinguished, but not those of the facial; that of the common carotid is quite distinct on the anterior edge of the mastoid muscle.

The skin on the surface of the tumour is almost universally inflamed, *below* the line of the jaw, and in most places even ulcerated; but the ulcerations do not seem unhealthy; they do not fungate, and appear to proceed more from the extreme tension of the skin and size of the tumour. The skin *above* the line of the jaw is not inflamed or ulcerated.

The superficial veins are much enlarged, and at one time a vein about the most projecting part of the tumour became eroded, and discharged a quantity of blood.

The questions to be considered are:

I. What is the nature of the tumour? Is it glandular, steatomatous, or, medullary sarcoma?

II. What are its probable attachments? and, What the degree of danger to be apprehended from attempting to extirpate it?

III. If it may be extirpated without immediate risk, is it likely she will be able to bear the consequences of the operation?"

Upon the statement of the case above given, the consultation came to the following conclusions on the three questions proposed to them.

I. The tumours formerly removed, both from their origin, history and the appearance they now assume, after having been long in spirits, are obviously lymphatic glands. This had a similar appearance for many years; and, although it was distinguishable at the period of the former operation, yet, from its long endurance and indolence, it was not considered to be dis-

eased. There is reason therefore to hope, that the tumour is glandular; at all events not medullary sarcoma; but it is difficult to conjecture how far the system may be contaminated.

II. From her account of her feelings alone, we would expect, that the chief attachment is about the insertion of the masseter muscle, as the tumour appeared just over the angle of the jaw, and ever since it began to grow, she felt as if she raised it, when she pressed her teeth together. But one or two other glands, which existed at the commencement, increased afterwards, and seem to have joined the main tumour. One of these was seated on the outside of the sterno-mastoid muscle, and another between the angle of the jaw and the tip of the ear. Judging from these circumstances of origin, therefore, as well as from her own sensations, one would be disposed to suspect that strong adhesions also exist at the corresponding points, none of which seemed to threaten danger, excepting that towards the inner edge of the mastoid muscle, just over the internal carotid, and that behind the angle of the jaw, where it may dip down to the styloid muscles. Still, even in this view, it must be noted, that her powers of deglutition and voice are entire.

III. The risks to be dreaded from an operation, proceed from the loss of blood to be apprehended from the enlargement of the subcutaneous veins, from the possibility of the parotid gland being concerned, and from the impossibility of avoiding many of the principal arterial branches.

These circumstances, and the rapidly increasing deterioration of her health having been duely considered, the consultation was of opinion, that the chance of recovery, however small it might be, should be given to our patient, by removing the tumour.

Mrs R. possessed a firm, decided mind, and great equanimity of temper; and the dangers and difficulty of the operation on one side having been stated to her, and the certainty of a speedily fatal termination, if none were performed, on the other, she immediately determined on having the tumour removed. This was accordingly proceeded with on 11th July.—She was placed on a chair; her head reclining over the back of it, on the breast of an assistant. An incision, commencing about two inches behind the ear, was carried parallel with the basis of the jaw to the point of the chin, thus leaving all the ulcerated portion of skin under the incision, and no diseased part above it. Another incision, commencing at the posterior extremity of the first, was carried in a semicircular course down to the clavicle; and a third from the chin, meeting the second at the clavicle, in a similar course; so that the greater portion of the diseased skin was included between the three incisions, and allowed to remain on the tumour destined to be removed.

The sound skin on the face was dissected from the tumour, and this was brought down from the cheek, and separated from the parotid gland, to which it adhered firmly, but which was found in a healthy state. This being ascertained, the tumour was separated from the jaw; then from its tracheal attachments, down to the sternum.

During this dissection, in which the knife was materially aided by drawing out the tumour, aud separating the more loose connections with the parts below, by the fingers, and the handle of the knife, the tumour was found to be more lobulated below, in the deep-seated parts, than it was externally, and many small vessels were tied, as they were divided, along with the aponeurotic bands, or septa, accompanying them in the interstices of the lobules of the tumour. The common trunk of the carotid was exposed, but not denuded of its sheath; and the internal jugular. No large arterial branch was wounded, excepting the inferior thyroid, and that was tied before it was divided. The omo-hyoideus muscle was cut through, but the sterno mastoid was not injured, although the adhesion between it and the tumour was considerable, along with which, a portion of the theca was removed. The tumour being thus cleared from the neighbourhood of the great vessels and nerves, the upper and back part of it was brought down from behind the ear and mastoid process, and, in this part of the dissection, no disturbance was experienced, excepting from a large branch of the occipital artery, which was secured before being divided. The skin saved was not sufficient to cover the whole of the wound, but a small portion of it only remained uncovered. The patient bore the operation admirably, without becoming faintish, not more than a pint of blood was lost, and that chiefly from the superficial veins at the commencement. She never flinched, and thus facilitated a business, which necessarily was very tedious, from the intimate adhesions existing between the tumour and the subjacent parts, and the uncertainty produced by the displacement of many of these. The wound went on healing regularly and quickly, without any untoward symptoms; the skin adhered every where to the subjacent parts, and the central wound healed over, so that she returned to England within seven weeks from the operation.

The tumour weighed about four pounds and an half. Viewed externally, it seemed as if it were lobulated, all the lobules massing in with the main body of the tumour. On cutting into it, the texture was pretty uniform throughout, being generally that of a compact, indurated, lymphatic gland, such as we often meet with in the axilla, in cases of scirrhous mamma, before these indurated glands have themselves degenerated into scirrhus; yet

in some few places, there seemed to be an approach to the commencement of scirrhus, some striæ having here and there made their appearance, particularly at those spots where the lobules were bound down, by the membranous bands, to the deep seated parts.

Mrs R. continued well, the wound remaining healed, until the month of November, when a small thickening appeared on the left lower maxillary bone, over the insertion of the masseter muscle. This increased, the skin covering it was very tender; it gave way, and no improvement having been obtained from the use of various escharotics, I recommended the application of an ointment composed of oxyd. arsenic. alb. gr. xii., opii gr. viii., ungt. ceræ ℥ss.; and, subsequently, of a powder with oxyd. arsenic. alb. ℈i, cretæ preptæ. ℥ss. to be copiously sprinkled over the same. This was done, and it operated so effectually, that, not only all the diseased parts separated, but a portion of the tendon of the masseter, and that part of the jaw-bone into which the masseter is inserted, soon afterwards exfoliated. The wound healed, and she remained well for some time; but the disease returned, her health failed, and, after various attempts, by means of arsenic and other escharotics, to remove the indurations as they appeared, she died in March 1816.

I have purposely avoided making numerous references. The subject of tumours of the neck is too interesting and important to admit of being exhausted, or even extended sufficiently, in the limited pages of a periodical journal; and it is one of those which ought to be studied at length, and made out by every member of the profession. My sole object has been to give a faithful detail of the difficulties, as well as facilities, of a single case of a tumour so situated, which was, at the time, the largest and most formidable I had seen, or could hear of, in this country, that had been operated on, or terminated favourably. I was aware of Mr Atkinson of York having removed a very large tumour from the neck of a woman in 1813 (See Med. & Phys. Journal, vol. xxx. p. 353) successfully; and I find that since mine, Mr Cusack of Dublin (Dub. Hosp. Reports, vol. i. p. 205), removed a very formidable one, after securing the external carotid artery, in April 1817; and Mr Goodlad of Bury another, in August 1815, where he found it necessary previously to tie the common carotid. (Med. Chirurgic. Transactions of London, vol. vii. p. 112.) Much useful information and encouragement may be obtained from the perusal of these cases; and it is greatly to be wished, that surgeons would more frequently take the same pains, in narrating the difficulties, as well as facilities, which they experience, in the conduct of rare and difficult, as well as common, cases and operations, instead of entering into tedious theoretical discussions, which tend to ob-

scure the matter at issue, and leave their professional brethren to study it out in their own way.

I will only farther observe, that I am persuaded, with Mr Allan Burns, in his admirable Treatise on the Surgical Anatomy of the Head and Neck, that the danger and difficulty in operating on tumours of the neck and throat may be greatly lessened, by making more use, in a cautious manner, in many cases, of the handle of the knife, and of the fingers, than of the edge of the knife, in the latter part of the dissection.

(For the drawing referred to in the foregoing paper, see Plate I.)

Art. X.—*Substance of Observations communicated to the Philomathic Society of Paris, relative to a wound of the Head.*

By Baron Larrey.

On the 15th May 1825, there was conveyed to the Hospital of the Guard, a soldier of the 2d Regiment of Infantry of this corps, named Claude L——, aged 27 years. He had received, in a duel, the same day, a cut wth a foot-soldier's sabre, which had divided, along with the soft parts of the right temple, a portion of the os frontis, all the anterior inferior angle of the parietal bone, and a small corresponding portion of the great wing of the sphenoid, in such a manner as to produce an osseous fragment of an oval form, about $2\frac{1}{4}$ inches in length, by one in breadth. The external lamina of the dura mater had been cut, and there was an equal injury done to the two principal branches of the middle meningeal artery. In short, the patient, upon receiving the injury, had fallen down senseless.

After the first assistance had been afforded him by the surgeon of the regiment, he was removed to the Hospital, where he arrived in a state of profound intoxication, and bathed in his blood. Notwithstanding, we proceeded in the dressing of his wound. After having extracted the fragment severed from the cranium, which still adhered by some fibrous portions of the temporal muscles, it was conceived, that, by means of a compression made with tents of lint, we might be enabled to stop the blood, which was supplied by arteries situated higher up. But some days after, when the suppurative process took place, the hæmorrhage was renewed with redoubled violence. This incident occurred during my visit on the 19th. We lifted up with gentleness all the dressings, and directing our attention to the osseous furrows of the parietal bone, in which the two divided arteries were concealed, placed upon them a small plate of bent iron, red hot, which instantaneously stopped the hæmorrhage. The wounded man did not feel the application of the

heated iron, although we had introduced it about one fifth of an inch deep between the dura mater and the cranium. The dressings were then made with security.

The compression which the plugging had produced upon the brain, had thrown the patient into a state of heaviness; nevertheless he did not manifest any signs of hemiplegia. Being bled from the jugular vein, and cupping glasses having been applied to the nape of the neck, and between the shoulders, these transient symptoms, depending on the engorgement of the cerebral vessels, were dissipated. After the cauterization was performed, the patient became calm; the suppuration of the wound was quickly re-established, and all the functions were performed without any apparent obstacle. Thus, at length, every thing announced an auspicious termination, when, towards the fourteenth day of the accident, the patient suddenly manifested symptoms which indicated the greatest impediment in the circulation, such as smallness of pulse, which was felt like a thread, and presented a marked intermission at each third pulsation. The patient felt a kind of oppression in the præcordial region, where we could detect with difficulty very slight pulsations of the heart. He uttered frequent sighs, and was annoyed by an uneasy, troublesome, and permanent weight in the head, which he could not support when lifted up. However, his moral and sensitive faculties were preserved entire; he answered with correctness to the questions asked him, and followed with ease the subject of a discourse. The dressings of the wound were made without pain to him.

We found out that a small abscess had been formed at the opening which had been made with the lancet in the jugular vein. We opened it, and discovered that its seat extended throughout the whole extent of this vein, which, notwithstanding, appeared to us to be obliterated. But it is probable, that, in the first course of the formation of the abscess, the purulent matter had penetrated into the tube of this vein, and had passed, along with the blood, into the right auricle of the heart. The fact is, that the signs of the circulation of the blood were progressively lessening; the pulse and the heat appeared entirely gone, although the patient still spoke, and asked with anxiety for an emetic, to relieve him from the weight which unremittingly oppressed him in the region of the heart, to which, without ceasing, he applied his hand. In short, he died on the night of the 29th or 30th of May, after having had several convulsions.

Dissection.—At the opening of the body, made twenty-four hours after death, a complete rigidity existed in all the limbs; the face was the colour of marble, and there was an injection of black blood into the vessels of the conjunctiva.

The cranium having been sawed off, and its left half examined, we observed, on detaching the dura mater from the internal surface of its osseous covering, that the portion of this membrane corresponding to the opening which the piece carried off by the sabre had left, was covered with fleshy excrescences, in which was buried a plate of the internal table of the parietal bone. This membrane presented elsewhere no trace of inflammation, not even at the point of cauterization made upon the cut extremities of the meningeal arteries. The sinus of the dura mater, and the vessels of the pia mater, were gorged with a black and liquid blood; yet this serous envelope, as well as the brain, shewed no sign of inflammation. The lateral ventricles displayed very little serum, but we discovered about three ounces of this fluid under the two lobes of the cerebellum, and in the spinal canal. The substance of the brain had acquired a little more density than we had observed in it in the healthy state.

On opening the thorax, we observed the lungs pressed down, and of a greyish colour. The total mass of the heart had acquired a considerable volume, so as to fill the whole cavity of the pericardium, which was almost wholly deprived of serum. On opening the right auricle, we were astonished to find it filled and distended by a yellowish, albuminous, concretion, very solid, and fixing itself by a thick pedicle to the two venæ cavæ. There was neither blood nor coagulum in the ventricle of the same side, nor any in that of the left side; although we again met with it in the curvature of the aorta, and at the origin of the principal branches of this artery.

The viscera of the abdomen shewed nothing remarkable.

After these facts, it is evident, according to M. Larrey, 1*st*, That the cauterization of the meningeal arteries did not, and indeed could not, be productive of any untoward accident; and that this is the most easy, the most simple, and surest mode of stopping the hæmorrhage of such arteries as ramify in the furrows of the interior of the cranium.

2dly, That the death of the patient ought to be chiefly attributed to the obstacles that the black blood encountered in its passage to the pulmonary ducts, and to the successive and gradual stoppage which was put to the general circulation. It is, indeed, to this cause that we must refer the passive yet uninflammatory obstruction of the cerebral vessels, and the eventual extinction of the vital principle.

But, What have been the causes of the formation of these albuminous concretions? This soldier had certainly made great use of brandy, and when he entered the hospital he was in a state of intoxication. It is probable, then, that he must have succeeded in procuring spiritous liquors during the course of his illness.

ART. XI.—*History of a Case of Supposed Fracture of the Neck of the Thigh Bone within the Capsular Ligament, followed by Bony Reunion.* By JAMES BEGBIE, M. D. Fellow of the Royal College of Surgeons of Edinburgh.

THE diversity of opinion which still continues to divide surgeons, regarding the powers of nature, and the resources of art, in reuniting fracture of the neck of the femur, when that injury takes place entirely within the capsular ligament, demands the publication of every case which may contribute to advance our knowledge of the subject, or assist in determining the question at issue. The following, which has already, in a limited circle, strengthened and confirmed the views, or removed the doubts, which are entertained in regard to the possibility of reunion; will, I believe, not be found void of interest, while it may tend to elicit farther information on this agitated subject.

A feeble lady, aged 77 (November 1821), in walking from her bedroom into an adjoining apartment, slipt her right foot suddenly and unexpectedly over the edge of the landing place of a flight of steps, and immediately fell, or sunk down, on the right hip. She attempted to rise, but found that she had completely lost all command over the limb of that side. Her attendants, on coming to her assistance, found her sitting on the landing place, her feet resting on the steps below. She was immediately conveyed to bed; but suffering comparatively little pain, and it being now late in the evening, no assistance was requested till the following morning. I found her then in the posture which she had maintained through the night, resting upon her back; the right limb shortened about an inch and a half, the knee and toes considerably turned outwards, the heel resting in the hollow between the malleolus internus and tendo Achillis of the left leg. She made no complaint, except of complete inability to move the limb; but all attempts at rotating the thigh occasioned considerable pain in the situation of the trochanter major, as also in the upper and inner part of the thigh. The extension of the limb, in order to bring the inner ankles together, was readily accomplished, but somewhat painful; the position could not, however, be maintained, and the limb returned to its former seat. No crepitus could be distinguished in the recumbent posture, and the age and helplessness of the patient made me unwilling to subject her to farther examination in the erect position. In consultation with Dr Abercrombie, who frequently visited her during her confinement, her friends were apprised of the help-

less state to which, in all probability, she would be reduced for the remainder of her days, from no complete reunion being anticipated, and the treatment was therefore very simple. A broad, firm bandage, encircling the body, was brought round the thigh and leg, and constantly worn; the limb properly supported with pillows, and every attempt made to keep it extended, with the knees and heels in apposition. Under this plan she continued for about five months, occasionally changing from her bed to a sofa. She then began to make some partial use of the leg, and, with the assistance of crutches, was enabled to move through the room; she then laid aside the crutches, and walked with the aid of a staff; this she also ultimately relinquished, and, by wearing a very high-heeled shoe, was enabled, before the end of a year, to walk with great facility through her house; and, for more than a twelvemonth before her last illness, to descend and ascend daily from one story of her house to another, in passing to dinner. Her knee and foot continued very much everted, and the limb considerably shortened. In November 1823, she was seized with an affection of the brain, which proved fatal in April 1824.

Dissection.—On viewing the body, the shortening of the right leg, and the eversion of the knee and foot, were conspicuous. By a free opening into the joint, the head of the bone was found to move freely in the acetabulum; the capsular and round ligaments were cut close to their separate connexions with this cavity; the thigh bone sawn across a little below the trochanter minor, and removed for examination. There did not appear to be any disease in the acetabulum itself; the capsular ligament was throughout considerably thickened; the ligamentum teres was entire and healthy. There was a remarkable absorption of the neck of the bone on the posterior aspect, so that the head was nearly brought into contact with the trochanter major. The appearances on the anterior aspect, and internal structure of the bone, will be best understood by a reference to the accompanying plate.

The bone itself is preserved in the Museum of the Royal College of Surgeons of Edinburgh.

Explanation of Plate II.

Fig. 1. The external appearance of the anterior aspect.
- *a*, The head of the bone retaining its natural form.
- *b*, The trochanter major.
- *c*, Appearance of absorption of cartilage.
- *d*, Deposition of new bone in the supposed line of fracture.
- *e*, Capsular ligament.

Fig. 2. Internal appearance of the same aspect.
- *a*, Head of the bone.
- *b*, Trochanter major.

c, Representation of compact texture crossing the bone in the supposed line of fracture.

Fig. 3. Internal appearance of the posterior aspect.
a, Head of the bone.
b, Trochanter major.
c, Line of compact texture crossing the bone, and much denser than in the opposite section.

N. B.—The optical illusion produced by the cylindrical form of the glass in which the preparations are contained, and an accidental enlargement of the tracing paper employed by the engraver, has caused him to exhibit the figures about one fifth too large. With this allowance, however, the representation is faithful; and even the accidental error, too late to be remedied, has added to their general distinctness.

On review, we remark, that the preparation which presents the morbid appearances now referred to, is destitute of one source of doubt, which has involved most, if not all, the specimens which have as yet been brought forward in proof of the possibility of bony reunion,—the want of a previous history; that this history, in its leading characters, bears a most marked resemblance to those given by our best authors, in illustration of fracture of the neck of the femur; and that dissection points out appearances which can readily be referred to reunited fracture, and which, when taken in conjunction with the history during life, seem to decide that such was the nature of the case.

The extreme rarity, however, of such an occurrence, if, indeed, its possibility be acknowledged, and the marks of diseased action on the bone itself, have led some of the most experienced and best informed surgeons greatly to doubt the accuracy of this opinion, as the following communication, with which I am favoured by Sir Astley Cooper, sufficiently shews.

"Dear Sir,—I return you my best thanks for the sight of your preparation, which, at the first glance, I thought was a fracture, but which, upon farther examination, left me in great doubt, for the following reasons.

"1*st*, Because, in the internal appearance of the anterior section, there is nothing which has the character of fracture;

"*2dly*, Because there is the most marked appearance of disease around the ligamentum teres;

"*3dly*, Because there is a morbid appearance in the cancelli of each section. Perhaps some diseased change has been produced by the accident.

"I have sent you some heads of thigh-bones, to shew the remarkable changes which age and disease will produce, which you will have the kindness to return, when you have shewn them to Doctors Thomson, Monro, and Barclay.

"And now, let me take the liberty of stating to you my opinions upon this subject, as I am very much misrepresented. I

believe the fracture of the neck of the thigh-bone, as a general principle, does not unite by bone; and that the reason for its non-union is, that the vessels of the cancelli and reflected ligament and periosteum being torn, the head of the bone is too little nourished for ossific union. But if the fracture is a fissure only in the bone, and the envelop of ligament and periosteum remains entire, I have shewn, by my experiments upon the longitudinal fracture of the neck of the bone, that it will unite, because then the means of nutrition remain. In fractures of the patella, when the cancellated structure is in perfect contact, and remains so, I have shewn, by experiment, that an union will be effected. See Work.

" It appears that your patient was treated such as ours are, who labour under fracture of the neck of the thigh-bone; that is, allowed to rise occasionally, and to sit up. She also recovered in the same degree as in cases of fracture with ligamentous union.

" You will oblige me by keeping this scrawl, but you may make use of it as you think proper.

" Yours, very truly obliged,

" Astley Cooper.

" Pray, answer me three questions, as these might lessen my doubts.

" 1. Is there any disease in the other thigh-bone?

" 2. Is there any disease in the acetabulum of the same side?

" 3. Was the ligamentum teres untorn?

" *To Dr Begbie.*"

In examining the reasons here assigned for doubting the existence of fracture, Sir Astley, I apprehend, has stated the first in stronger terms than may seem adequate to many readers; for while it must be admitted that the one section presents appearances which are indistinct, compared with the bold line of the other; still I think it cannot be affirmed, that the character of united fracture is entirely awanting. Let it be observed, that this section, from the manner in which the bone has been sawn, includes the greater part of the internal structure of the bone; and that here, the efforts of nature, at first directed to strengthen the broken part by osseous deposition, have latterly been endeavouring to reestablish the original cancellated structure; so that it is probable, had life been sufficiently prolonged, the appearance in this place would have been at length entirely lost.

In regard to the second reason, I have no hesitation in saying, that the morbid appearance alluded to, was in a great measure the effect of injury done to the recent cartilage in the frequent removal of the preparation from the spirits in which it is

preserved, and in the carriage to London in an unsuitable package; and this is the impression of all who had an opportunity of examining the bone immediately after its removal from the body. But admitting the existence of disease, both here, and as stated in Sir Astley Cooper's third reason of doubt, in the cancelli of each section, no great weight, I apprehend, is to be given to such an objection; for these appearances may, with equal probability, be supposed to have supervened upon the fracture and reunion, as to be the evidence of a previous morbid process, to which the symptoms, during life, and the characters of fracture on dissection, are to be attributed.

I am aware of other, and apparently strong, objections, being entertained against the reception of this case as one of fracture within the capsular ligament. I leave the whole, however, to the candid consideration of the profession to decide, regretting that an opportunity was not afforded of examining and comparing the other thigh bone, which might have led to the removal of doubts which will continue to be entertained regarding its real nature.

18. Albany Street,
December 5. 1825.

Art. XII.—*On the Use of Camphor and Hyoscyamus in Gonorrhea.* By Benjamin Bell, M. M. C. S. L. Fellow of the Royal Colleges of Surgeons, Edinburgh and London, Surgeon to the Asylum for the Blind, and Royal Public Dispensary, &c.

Gonorrhea has always presented many difficulties to the practitioner in his attempts to remove it; and there is perhaps no complaint for which so many specifics have been suggested. The last circumstance, in truth, proves, that the malady has been for the most part treated upon empirical principles; and this remark applies most forcibly to the later stages of the disease, as the early stages admit of but one obvious plan of treatment.

Upon minute consideration of the practice generally pursued in the later stages of gonorrhea, I have been led to conclude, that the system usually adopted is founded upon error, and that the remedies commonly exhibited are ill calculated to effect the design for which they are prescribed. These conclusions do not constitute the result of speculation, but are founded upon observation and experiment.

For some time I was accustomed to use the stimulating diuretics, in what has been commonly denominated the chronic

stage of gonorrhea, but, for the most part, with little success; for, although these medicines may answer the purposes for which they are intended, in some instances, still in many cases their exhibition is followed by disagreeable, and even dangerous, consequences. My opinions on this subject are certainly not original, for every practitioner must have met with cases in which the evil effects of these remedies were illustrated.

It may be said, that the surgeon should be qualified to judge of the occasions on which the stimulating medicines, alluded to above, may be prescribed with propriety; but whoever has had an opportunity of seeing much of the disease, will be aware of the difficulties that present themselves, in distinguishing the symptoms which characterize the different morbid conditions of a mucous surface. It is in a great measure owing to inattention on the part of the practitioner to the idiosyncrasy of the patient, that the treatment of gonorrhea constitutes one of the opprobria of surgery. Indeed the disease, in most cases, would exhaust itself more rapidly, if not interfered with, than it is observed to do, when treated in the common method. It is a constitutional affection of the *irritable class*, and should therefore, from that circumstance, be treated, throughout all its stages, on those principles which have for their object the *allaying* of irritability. We do not find, however, that such *methodus medendi* has been generally practised; for a notion prevails, that, so soon as the primary, acute symptoms of inflammation have been subdued, the disease falls to be treated after the manner of complaints which are of the *atonic* class. Turpentine, the balsam of copaiba, cubebs, tincture of cantharides, &c. are therefore given with an unsparing hand, and the delicate mucous membrane of the urethra is irritated by stimulating or astringent injections. In the most favourable cases, these medicaments have a decided tendency to impair the functions of digestion, and to render the lining membrane of the urethra permanently susceptible.

Every practitioner must be aware, that, even after the local acute inflammatory symptoms of a mucous membrane have been allayed, a degree of subacute irritation, attended with more or less turgescence of the vessels of the part, remain, which are also accompanied by general derangement in the functions of the digestive organs. On taking this view of the subject, the impropriety of employing those drugs, which tend either to disorder, by their general stimulating influence, or by their local specific effects, the functions of digestion, is apparent,—for it is well known, that a very intimate sympathy prevails among all the mucous surfaces.

It appears to me, therefore, that, after the acute symptoms of

gonorrhœa have been subdued, that plan of treatment should be adopted which has for its object the allaying of irritability, local as well as general.

It is a difficult task to determine when the inflammatory stage has subsided, for the absence of pain, ardor urinæ, and chordée, does not afford a sufficient test of the occurrence of such an event. It frequently happens that, after the disappearance of these symptoms, a degree of uneasiness remains, which is even more difficult to remove than the primary symptoms of the complaint. This uneasiness is characterised by painful spasms after micturition, irritability of the erectile tissue of the penis and cervix vesicæ, and tenesmus, arising from irregular action of the sphincter and levator ani. Indeed, the whole urinary apparatus is sometimes affected, and the urine is frequently observed to assume a muddy appearance, in consequence of an undue secretion of mucus from the internal tunic of the bladder.

When the phenomena to which I have alluded are present, the impropriety of pursuing the stimulating system of cure is evident; for in these cases, which indeed are of very common occurrence, the organs of generation are generally in an irritable state, and are easily induced to become inflamed.

In this state of the organs, a single dose of copaiba, cubeb pepper, or tincture of cantharides, will bring on an attack of hernia humoralis, cystitis, inflammation of the prostate, or spasm of the neck of the bladder, so violent, as to occasion retention of urine. I have not drawn an exaggerated picture; such events are frequent, and will be so until the stimulating diuretics, and, indeed, diuretics of every description, are excluded from practice in the treatment of gonorrhea. Even *simple diluents* do not appear to me to be salutary, at least in the quantity in which they are usually prescribed. They load and upset the stomach, fatigue the kidneys, and irritate the bladder, by calling it too frequently into action.

Although *diuretics* and the *stimulating balsams* should not, in my humble opinion, be resorted to in the treatment of gonorrhœa, or of that *numerous class* of diseases ranged under the general appellation of *gleet;* still I do think that, in some of the *sequelæ* of gonorrhœa, they may be employed with advantage. In that state of debility of the bladder, or of its cervix, which occasionally follows an inveterate or ill treated gonorrhea, when the organs do not contract to a sufficient extent, or contract irregularly, they are frequently serviceable.

There is another state, also, in which they may be employed with some prospect of advantage, and that is, when there appears to exist a state of partial or total atony of the erectile tissue of the penis, accompanied by a thin, watery, mucous discharge.

This state is particularly annoying to the patient, not from the pain attending it, as that is generally very trifling, but from the impossibility of his procuring an erection:—he is, in truth, impotent. It is the impotency of the debauchee, which has affected him—an impotency, in some cases at least, incurable, as it seems to depend occasionally upon a varicose state of the veins which convey the blood from the cavernous and spongy structures of the urethra.

A very great deal might be said upon the points connected with the treatment of gonorrhea, to which I have so briefly alluded; but, as I have already extended my remarks to as great a length as the limits of a periodical publication will admit, I shall proceed to a concise detail of the practice which I have found to prove most successful.

Gonorrhea may, with propriety, be divided into *four* distinct periods, each differing essentially from the other. In all of them a different plan of treatment must be pursued, since *many* of those medicines which prove serviceable in one stage, prove either quite inert or improper in another. In one particular, however, the different stages resemble one another; for in all, there is more or less constitutional and local irritability present. The remedies, therefore, which are used in their treatment must be calculated to *allay irritability*.

The *first stage* is one of mere local and general irritation. In the *second*, the symptoms of irritation are conjoined with local inflammation, and a morbid discharge of mucus combined with pus. In the *third stage*, there still remains irritation and inflammation, but of a less acute description than in the second stage. In the *fourth stage*, all inflammation and discharged have ceased, but there still remain some traces of local irritability.

First, or *Acute Irritable Stage*.—During this period of gonorrhea, when inflammation has not yet taken place, every effort should be made to lower the system; for it has been observed, that the severity of the inflammatory stage depends in some measure upon the degree of irritation which has previously existed.

In order to accomplish this object, the patient must be confined to a low diet, his bowels should be relaxed by means of mild purgatives, and the cuticular secretion promoted by the daily employment of the general warm bath. The purgatives which seem best suited for allaying mucous irritation, and more especially where the urinary organs are the parts principally concerned, are those of that class which promote free and watery alvine evacuations, without acting violently on the colon or rectum, or affecting the chemical composition of

the urine. Sulphur, alone, or combined with magnesia, senna, castor-oil, blue pill combined with ipecacuan, or calomel in conjunction with antimony and opium, are peculiarly applicable, as they have a secondary effect upon the skin. Rhubarb, the gum-resins, and neutral salts, should never be prescribed.

Second, or *Inflammatory Stage.*—So soon as inflammatory action is fairly established in the mucous membrane of the urethra, recourse must be had to more active treatment. In plethoric habits, blood may be taken freely from the arm; and, in more delicate constitutions, cupping of the loins will be found advantageous. Leeches I am no friend to in gonorrhœa, as they irritate and annoy the patient, and in some cases give rise to troublesome erysipelas, or œdema; and when applied to the perineum, are apt, from the irritation they produce, to occasion painful erections, and to interfere with the use of fomentations, which are in every instance valuable adjuncts. I am not sure how far the general warm-bath is useful in the acute inflammatory stage, as in several cases it has seemed to exacerbate the symptoms.

It is in this stage that ardor urinæ, nocturnal erections, and chordée, exist; and I have seen the agony attendant upon the latter symptom so severe, that the patient contemplated the hour of bed-time with a degree of horror bordering on despair. In the case of a West Indian gentleman, the chordée was so dreadful, that, at his own hand, he nearly committed suicide, by taking an overdose of opium and digitalis.

Anxious to discover a remedy which might tend to alleviate the agonies of chordée, without disordering the digestive organs, as opium generally does, it occurred to me, that, as camphor is sometimes used with great benefit in irritable affections of the bladder, and aware of the experiments of Chrestien on the subject, I determined to give it a fair trial. My experiments with regard to this drug have been hitherto attended with success.

It must be observed, that camphor cannot be exhibited alone, as it is very apt to give rise to nausea. In combination with hyoscyamus, however, that objection is obviated, for the compound has never, so far as I have observed, given rise to any gastric uneasiness.

When combined, in the form of pill, with hyoscyamus, camphor may be pushed to a very considerable extent; and in more than one instance, when severe chordée, attended with spasm of the cervix vesicæ, existed, I have prescribed, in the course of twenty-four hours, one drachm of the latter, in combination with two scruples of the former. In general, half the above quantity will be found sufficient; and the rule to be observed in giving them is very simple, for, on the occurrence of

the slightest symptoms of vertigo, their exhibition should be suspended.

Camphor and hyoscyamus possess several advantages over other narcotics; they appear to have a decided effect in diminishing the force of the circulation, and they allay irritation, and do not occasion costiveness, or a diminution of the secretion of mucus from the lining membrane of the intestines. In truth, they do not interfere with the exhibition of other medicines.

Camphor may be employed with advantage in all the stages of gonorrhœa; and in those rare cases where it is found not to agree with the stomach, it may be used in the form of a liniment, rubbed five or six times a day upon the loins, perineum, or groins.

Third, or *Chronic Inflammatory Stage.*—It is at this period of gonorrhea, when all the acute symptoms have disappeared, that the sagacity of the practitioner has full scope. It is the stage of difficulty. Depleting remedies will be found to prove noxious, and stimulants dangerous. A purgative may induce a serious relapse; and one dose of copaiba, cubebs, tincture of cantharides, or a single astringent injection, give rise to hernia humeralis, cystitis, or catarrhus vesicæ.

Quiescence will, in this stage, be found the most valuable remedy; the cold hip-bath may be used, and nauseous gruels and slops may be relinquished for animal food. A mild alterative course of the blue pill, with antimony, or ipecacuanha, will also, in many cases, be attended with advantage; and an occasional dose of magnesia, with colomba or gentian, will be of service.

Fourth, or *Chronic Irritable Stage.*—We have now arrived at that stage when the lips of the urethra have assumed their natural appearance, when almost all discharge has ceased, and when the patient experiences merely an occasional slight uneasiness during micturition. This state of atonic irritability, if I may be allowed the expression, is sometimes very obstinate, and requires particular attention on the part of the surgeon. It will yield in many cases to local or general cold bathing, and tonics; and in this state I have observed the sulphate of quinin to prove of great service.

Before concluding this very brief outline of my views relative to the nature and treatment of gonorrhea, I may suggest, that the *two remedies* which have been more particularly insisted upon, as proving of much service in *rapidly* alleviating some of the distressing symptoms of gonorrhea, appear to deserve a fair trial,—for, although, in most of the cases that have come under my observation, *camphor* and *hyoscyamus*, when given in *sufficient* quantity, have not failed to produce the effect desired, still, the limited experience of one individual is not calculated to establish the propriety of any particular line of practice.

ART. XIII.—*A case of Wound with Protrusion of the Stomach.* By BENJAMIN TRAVERS, F. R. S. Surgeon to St Thomas's Hospital, and Honorary Member of the Royal Medical Society of Edinburgh.—Communicated to one of the Editors.

DEAR SIR,

I TRANSMIT you a case, which appears to me worthy to be recorded, of wound with protrusion of the stomach, for insertion in the first number of the Edinburgh Journal of Medical Science. To this communication I have added a few references to wounds and apertures of this viscus, under the several forms in which they occur, with such cursory observations as the subject suggested. Accept my best wishes for the prosperity of your undertaking, and believe me,

Yours, with much respect,

BENJ. TRAVERS.

BURTON STREET, BERKLEY SQUARE,
December 7. 1825.

MARY GEORGE, aged 53, of delicate habit of body, and mother of nineteen children, at noon, on Thursday the 18th of October 1819, in a fit of despondency, inflicted upon herself, with a razor, a transverse wound, dividing the parietes of the abdomen, to the extent of three inches, a little below the umbilicus, in a line inclining obliquely downwards from left to right. There were also two superficial wounds a little below the former.

On her admission into St Thomas's Hospital, about half past six o'clock of the same day, the greater part of the large curvature of the stomach, the arch of the colon, and the entire large omentum, were protruded and strangulated at the wound. Upon further examination, the omentum was discovered to be detached from the stomach to a considerable extent; and two wounds appeared on this viscus, the one a peritoneal graze, about half an inch in length, the other a perforation of its coats, admitting the head of a large probe. A considerable quantity of mucus was observed to issue from this opening.

At the time of her admission she was exceedingly faint and exhausted, having lain concealed near six hours before her deplorable situation was discovered by her family. Pulse 102, and irregular, countenance pale and dejected, surface of the body moderately warm, little pain in the abdomen, diaphragm irritable, having a disposition to, rather than actual hiccup, but no vomiting. The interstice of separation between the omen-

tum and the stomach was filled by coagula, but it did not appear that she had lost much blood. A small portion of the coats of the stomach including the wound was nipped up with a pair of forceps, a silk ligature tied around it, and, after a vertical dilatation of the wound, the protruded viscera with considerable difficulty returned into the cavity of the abdomen; the parietal wound was closed by the quill suture; warm fomentations were applied to the abdomen, and the patient ordered to be kept strictly quiet, and without either food or drink. During the reduction of the protruded viscera, she suffered excruciating pain, and from the spasmodic action of the diaphragm considerable resistance was offered to their return, notwithstanding the entire relaxation of the abdominal muscles.

19*th*, 8 A. M.—Vomited twice during the night and had slight hiccup. Slept a good deal, and, upon the whole, passed a good night. Contrary to order the nurse had given the patient tea twice, which appears to have been the cause of the vomiting, for she ejected it both times. In reply to questions, expresses herself comfortable and free from pain. Pulse 120, full and soft, tongue white and moist, skin warm, countenance not so pale as last evening, and less anxious. Upon pressure, feels considerable pain in the abdomen, which has but little tension; has had no motion, but voided a good deal of high coloured urine. Ordered an injection of salt and gruel.

8 o'clock P. M.—Has vomited twice, the quantity small, hiccup continues. Pulse same in frequency, but rather more contracted and hard; in other respects about the same as in the morning. Has taken no nourishment. The injection gave a great deal of pain, and did not operate. To take three drachms of castor oil, and twenty leeches to be applied to the abdomen.

20*th*, 8 o'clock A. M.—Passed a restless night, slept but little; vomited once; no hiccup; pain and tension much increased. Pulse 106 and hard, tongue dry and rather brown, skin hot and dry; complains of much thirst and no appetite; has had no stools, and had taken no food.

2 o'clock P. M.—A considerable exacerbation of the symptoms recorded in the morning, together with violent pain in the head and sickness. Eighteen ounces of blood to be taken from the arm. Sulph. magn. 3i. in the effervescing saline draught to be taken every hour, and twenty leeches to be applied to the abdomen.

10 o'clock.—Is now considerably relieved from pain and fever; the pulse reduced to 100, and not so hard or contracted; retains the medicine, but it has not operated; blood a little buffy, but not cupped.

21*st*, 10 o'clock A. M.—Continued restless through the night and till toward morning; is now much easier and disposed to

sleep; has had two dark coloured offensive motions. Pulse 98, full and soft; tongue rather brown but moist; skin dry and warm; considerable tension of the abdomen. Took a little bread and milk for breakfast.

10 o'clock P. M.—Continues better; has had three stools during the day. Pulse 98.

22d.—Had a good night, and is considerably better. To continue the salts in mint water, and to confine her regimen to beef tea and gruel.

Evening.—Continues relieved. Pulse 96, and full; bowels freely open, and motions healthy.

23d.—Was disturbed in the night with spasms of the abdominal muscles, but was soon relieved by the application of warm fomentations; in other respects about the same as last night. Removed the sutures, and the wound appears united by adhesion, saving at its right extremity, where there is a small aperture from which a serous fluid escapes in considerable quantity. Straps of adhesive plaster applied. Medicine and diet continued.

24th.—Slept nearly the whole of the night, and feels so well to day that she thinks she shall recover; is anxious for food, eats it with appetite, and retains it without inconvenience. The action of the bowels is regular, and the motions continue healthy. Pulse about 94, and soft; tongue moist; skin cool; no headach. Wound dressed and looks healthy. To continue the same diet, and to take the solutio sulph. magn. occasionally.

25th.—Passed a good night; but there is a little exacerbation to day. Pulse 108, but soft; appetite continues good, and the bowels regular. On removing the dressings a considerable quantity of pus and serum escaped from the unhealed angle of the wound.

29th.—Has continued to improve daily since the last report; sat up twice in the bed for a short time together; serum no longer flows from the wound, which is now nearly healed, and discharges a small quantity of healthy pus.

The patient continued doing well till Friday, November the 3d, when she was suddenly attacked with rigors, and symptoms of peritoneal inflammation followed. She was soon relieved by the application of sixteen leeches to the abdomen, and a free evacuation of the bowels, by a dose of castor oil. On the Monday following she was pronounced convalescent; on the subsequent Friday the wound was found perfectly united; on the Tuesday in the next week she got out of bed, and continued to do so, and to walk about the ward every day, till the 23d of December; on which day she was discharged from the house quite well. The ligature of the stomach was not observed in the evacuations.

I shall now shortly enumerate the various circumstances under which apertures of the stomach are produced.

SIMPLE LESIONS OF THE STOMACH, THE PARIETES ABDOMINIS REMAINING ENTIRE.

1. *From rupture by strain or concussion.*—This injury is in my experience very rare; whereas rupture of the intestine, especially the small intestine, from force applied to the abdominal walls, is by no means uncommon. The stomach, owing to its situation, is so well protected from obtuse or nonpenetrating blows by the elasticity of the false ribs and the concavity of the diaphragm increased to the utmost, also by the constriction or forcible compression of the abdomen, that its distension from food and the fixed state of the diaphragm, as in forced inspiration, seem to be necessary concurrences in the production of this species of injury. A heavy blow received in the act of self defence, or a strained incurvation of the body backwards after a full meal, may cause a rupture of the stomach. Several years ago a tumbling boy in Southwark, who had just been regaling on apples and gin before his performance, met with this accident; and the rupture was so considerable, as to permit the passage of the fragments of apple into the abdomen.

It is remarkable that most of the ruptures of the stomach by concussion upon record are coupled with ruptures of the diaphragm; whence it would appear probable that the rupturing force had been applied in an oblique direction. In this case too the stomach has been loaded: indeed it seems questionable if a blunt force, however applied, would rupture the collapsed or empty stomach. Conrad Fabricius mentions a case, in which the stomach ruptured by a kick had passed through the diaphragm, and its contents had been effused into the chest *. Morgagni refers to two such cases in which a powerful force had been applied. Neither patient survived the third day †. Mr Wheelright of London has related a case precisely similar in the Medico Chirurgical Transactions ‡. In these cases the cardiac extremity is protruded through the diaphragm, and the contents of the stomach escape by a small opening into the chest. We might have expected that the yielding of the diaphragm would have saved the stomach; but it is probable that the momentary resistance of the diaphragm, though overcome by the same impulse continued, occasions the rupture of the stomach on the principle of

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* De lethal. vuln. abdom. In Schlegel's collection of tracts on forensic medicine; also Schaarschmied, Rel. Med. Chir. tom. vi. c. 30. In this case, which was complicated with wound of the liver, life is stated to have been prolonged to the seventeenth day.

† De Sedibus et Causis Morborum, Epist. 54. n. 13. ‡ Vol. vi. p. 74.

the *contre-coup;* the inconsiderable size of the aperture and the effusion taking place in the chest having been determined by the yielding of the diaphragm.

2. *From abscess, ulcer, scirrhous tumour, sphacelus, or chemical disorganization.*

a. Abscess on the anterior surface of the stomach provides for itself by adhesion and opening upon the surface of the body; in which case, it either heals presently, or degenerates into chronic fistula; of both which terminations there have been many instances. This renders the wound compound. A good case is given by Mr Atkinson, in the Philosophical Transactions, in which, on separation of the eschar from a tumour situated in the region of the stomach, half a pint of ale was ejected in a full stream; the wound healed in six weeks *. Morgagni mentions a cicatrix of a tumour of the epigastrium, which had receded during uterogestation, opening and discharging the wine and pudding just received into the stomach; the wound healed perfectly †. Abscesses, however, both of the stomach and other viscera, frequently discharge themselves by the canal; and it is probable, that the large ringlike ulcers, situated on the posterior surface of the stomach, and guarded by a firm adhesion to the bed on which they rest, which are occasionally seen in morbid bodies under dissection, have their origin in abscess. They differ from the ulcer of the mucous coat in their much larger size, the coats being all equally destroyed to the extent of the aperture, and the equal roundness by an adhesive process of the margin of the ulcer, which has been, I imagine, that of the abscess. I formerly published a case, in which I met with such an ulcer on the posterior surface of the stomach, bound down to the crura of the diaphragm, in an aged woman, who died after the operation for crural hernia ‡. I have since seen a similar specimen.

b. Ulcers of the stomach are by no means rare, in which the villous and cellular coats have been destroyed to the breadth of a sixpence or double this, being sometimes circular, sometimes oblong, and generally situated in the pyloric extremity, leaving the peritoneal tunic entire,—and this, as there is reason to believe, yielding to accidental distension, so as to permit the sudden and fatal effusion of the contents into the abdomen. The smallness of the aperture, its centricality in reference to the ulcer, and the effusion taking place after a meal, or an exertion, or both, together with the appearance of the foramen, have led me to think the ultimate result casual. A case of this sort was mentioned

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* Phil. Trans. abr. vol. vii. † Epist. 36. n. 31.

‡ Med. Chir. Trans. vol. viii.

in the Appendix to my "Treatise on Injuries of the Intestines." Another was the subject of a communication by Dr Crampton of Dublin, to the Medico-Chirurgical Transactions of London *, to which I took the liberty of appending other recent instances with observations, which comprise all that I have to offer upon the subject. Dr Van Horn has made a well marked case of this class the subject of his inaugural thesis †. Another is recorded by Dr Peter, in Hufeland's Journal ‡; and my colleague, Dr Elliotson of St Thomas's Hospital, has very recently contributed another to the melancholy list §.

In a periodical French Journal, containing a report of the *post mortem* examination of the justly eminent and regretted Professor Beclard, mention is made of a cicatrix of an ulcer in the small curvature of the stomach. It was a fossa bounded by cord-like edges. He had been the subject, several years ago, while engaged in intense night study, of urgent gastrodynia, accompanied with other distressing symptoms of dyspepsia, which had compelled him to adopt and maintain a very rigorous system of diet. There can be no doubt, especially on the hypothesis of mechanical lesion giving the fatal termination to these cases, that, with the aid of a favourable position of the ulcer, as in M. Beclard's case, and great strictness of diet, such ulcers would have a fair chance of healing. The constitutional strength has seldom been materially depressed. There has been no confinement from illness, to explain the abrupt appearance of the symptoms; and we know, that ulcers of the mucous coat of the intestines heal in numberless instances. The practical inference is important, where circumstances lead to a suspicion of the existence of an ulcer; and a minute investigation of the previous symptoms in these unfortunate persons, so as to establish a diagnosis, is what principally demands the attention of the practitioner under whose notice such cases may in future fall.

c. Malignant tumours and scirrhous indurations of the lower orifice of the stomach and pylorus, sometimes suddenly terminate life, as those of the colon do, by ulcerated and bursten apertures above or adjoining the contracted or obliterated canal. I have specimens demonstrating this sequel of the disease in both structures.

d. Livid spots in acute inflammation of the stomach have been supposed to be gangrenous. They are sometimes seen after the inflaming mineral poisons, as arsenic, corrosive sublimate, &c. I have never seen sphacelus, *i. e.*, separation from a process of mortification of the coats of the stomach, but often in other parts

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* Vol. viii. † De Ventriculi ruptura. Diss. Inaug. Berlin 1817.

‡ Quart. Journ. of Foreign Medicine and Surgery, No. 18.

§ Med. Chir. Trans. vol. xiii. p. 1.

of the canal. About a month since, I was called to a female of middle age, who, after a succession of bloody stools with great pain of the lower belly and tenesmus, had just passed a portion of the entire cylinder of the colon, six inches in length, including the sigmoid flexure, in a state of putrefaction. On inspecting the abdomen after death, which happened two days subsequently, no trace of a preparing or repairing process appeared, nor was there any evidence of effusion of the contents of the bowels.

e. The concentrated acids and caustic alkali destroy the texture of the stomach, and pass into the abdomen. In a child who had swallowed a quantity of oil of vitriol, and died a short time ago in St Thomas's Hospital, a large shredded hole was found in the great curvature of the stomach. The oxalic acid, of late so frequently swallowed by accident or design, acts in this way on the coats of the stomach ; but not so speedily as to render superfluous the evacuation of the stomach by means of the syringe, to the timely use of which one of the few instances mentioned of preservation from the destructive effects of this poison was attributable. The same observation applies to the other articles of this class. Indeed, it is not on this principle that we can account for the rapid dissolution of persons who have swallowed these liquids ; nor in my opinion for the slower destructive operation of poisons which inflame. It is probable, that the holes made by the caustic poisons, analogous to the solvent action of the gastric juice, both actions being purely chemical, are in most instances posthumous.

3. *From a knife, fork, or other foreign body swallowed, or a blunt sword, bougie, or other instrument introduced by the esophagus.*

An almost incredible catalogue of cultrivori, under the head " plantophagus," is given by Ploucquet. It is remarkable, that knives and various foreign substances which have passed into the stomach, have seldom injured the texture of that organ. There are numerous well known instances of large earth-stones, fruit-stones, coins, glass, shells, keys, rings, crosses, hair, fish, reptiles, insects, &c. which have cleared the esophagus, and have produced no injury to the stomach ; although some have caused immovable obstructions at the valve of the colon, and other parts of the intestinal canal, inducing fatal ileus, or abscesses and fistulæ, which have given issue to these foreign bodies at the umbilicus or groin. In general, they slowly clear the canal, and are voided without mischief. In the man Cummins, whose body I examined at Guy's Hospital many years ago, the stomach had escaped. He had been a great glutton in his way, having swallowed, and in a great measure digested, I think, eighteen clasp knives. The intestines were perforated in two or three places, and one, the top

of the rectum, transfixed. No effusion had, however, taken place, the aperture being filled up by the pieces. The stomach held a vast number of corroded fragments * of the back springs and blades, the horn handles having all disappeared.

A Parisian juggler, exhibiting upon the Boulevards, two or three years ago, lost his hold of the sword-shaped lathe, nine inches long, which he had introduced into his gullet, and after several months of apprehension, and severe suffering, he became a patient in one of the hospitals, I believe the Hospice de l'Ecole de Médécine. Eventually an abscess presented at the upper part of the thigh, in opening which, the lathe was struck upon, and withdrawn. It was supposed that it had made its way from the stomach between the peritoneum and muscles of the abdomen. The man was soon afterwards discharged in health.

Soon after entering the profession, I witnessed the death of a man under symptoms of great distress, the subject of a stricture of the esophagus, from the imprudent use of a bougie of extraordinary length pointed at its extremity. Judging from the depth to which the instrument was carried, the pain which almost instantly followed the operation in the region of the stomach, and its increase during the two remaining days of his life, with frequent and ineffectual efforts to vomit, no doubt could be entertained but that the bougie had perforated the coats of the stomach †. His body was not examined.

It is remarkable that penetrating instruments, incapable from their dimensions of passing the duodenum, should, even with the aid of every precaution, remain for weeks and months in the stomach, without piercing its coats or exciting inflammation. Frequent nausea, sharp pains, incapability of lying on either side, and the necessity of preserving, whether erect or recumbent, a straight position of the body, are generally mentioned as the symptoms which are experienced. The constantly though slightly varying position of the instrument, resulting from the gentle and gradual, but unintermitted alteration of capacity and figure of the muscular bag, and the extraordinary secretion of a sheathing mucus, in addition to the instinctive quiescence of the patient, are the circumstances which must, I imagine, constitute the security that is afforded from perforation. It does not appear, indeed, why the delivery from such penetrating instruments, as in the case just mentioned and many others, should not in the course of time be effected with safety, as it is well known that pins and needles wander to the surface, the patient

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* These are preserved in the Museum at Guy's Hospital.

† I have heard of a case in which the esophagus was penetrated above the stricture, and a false passage established in the mediastinum, as was ascertained by *post mortem* examination.

keeping a due restraint upon himself, in failure of which, mischief from the wounds of large bloodvessels or diffused inflammation must in all reasonable probability ensue.

The cases which I have next to mention, are those of

COMPOUND LESIONS.

1. *From a wound by a knife, sword, bullet, or other foreign body penetrating the stomach through the abdominal parietes, without protrusion of this viscus.* Under this head come first, as the simplest cases, the operations of gastrotomy.

The case of the Prussian peasant, related by Becker and others, who dropped a pocket knife ten inches long into his stomach, in an attempt to excite vomiting, and was the subject of a consultation of all the medical men in Koningsberg, and of a successful operation for its extraction by Daniel Schwabar, is among the most famous on record. The knife, with a portrait of the peasant, is exhibited at the electoral library of Koningsberg.

A similar case and operation happened at Prague. The knife was nine inches long, and its extraction was performed by Florian Mathis, surgeon in chief to the Emperor, two months after the accident. A third case was the subject of operation on the eleventh day from the accident, at Rastembourg, by Hubner: the patient was a female, and the point of the knife, which was in length seven inches, had already penetrated the stomach, and excited a slight suppuration at the wound. The incisions in all these cases appear to have been made in the left hypochondrium, where the points of the knives presented above the great curvature.

M. Hevin, who cites these cases *, advises, that, for the operation, the stomach should be in a middle state between emptiness and distension, on account of the change of position in the extreme states, and the greater danger of wounding either of the curvatures, on the avoidance of which and the vessels there situated, the success of the operation mainly depends †. The following is a recent case. A young man accidentally swallowed a silver fork eight inches in length. M. Renaud, surgeon of Romans (department of the Drome), undertook the operation of gastrotomy; and, in the presence of several members of the fa-

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* Sur les corps étrangers arretés dans l'œsophage. Mem. de l'Acad. de Chir. tome i.

† Suture of the wound in the stomach, the extremities drawn through the parietal wound and ligatures upon this, were most probably applied in each of the above cases, though mentioned only in the first.

culty of Medicine of Paris and Montpelier, succeeded in extracting the fork. The young man is considered out of danger and was expected to recover in a short time *. *Tablettes Universelles.*

I shall now mention two cases in which the operation was not performed.

An occasional lunatic, who stated that in a fit of despondency he had swallowed an iron fork three years previously, but who was not credited, the examination of his person not affording any evidence of the fact,—hung himself. On dissection, the stomach was found to contain a fork of japanned iron, the prongs of which were closely pressed together. All the other viscera were sound †.

In the Edinburgh Philosophical Journal, Dr Barnes relates the case of Dempster, a juggler, who let slip into the stomach a table knife nine inches long, while practising the sham feat at Carlisle on the 17th of November 1823. The handle of the knife could be distinctly felt a little above the umbilicus when the stomach was empty, but not when distended. His sufferings were not very severe, but his health declined rapidly. He died in consequence of inflammation and gangrene of the stomach, brought on by the motion of the vehicle in travelling towards London, at Middlewich in Cheshire, on the 16th of January 1824, thus having survived the accident only two months. As it is stated to have been the unanimous opinion of the surgeons of Carlisle, that the knife should have been cut down upon, there can be little doubt that the man fell a victim to his own apprehensions or obstinacy. However this may be, I must be permitted to remark, that the profession loses credit by suffering such opportunities of saving life to pass unimproved, especially upon reference to the performances, above related, of our distant ancestors, whose feats, with all our real and assumed advantages from the *march of science*, would create upon this and some other subjects no ordinary sensation, if achieved with equal promptitude and success at the present day.

Hevin, in the interesting memoir before referred to, mentions a small sword wound of the stomach, treated by M. Coghlan of the Belle Isle Hospital. It was followed by very copious and repeated vomiting of blood, and cured by vigorous confinement, large doses of alum, and a process of starvation. Bohn in his Treatise, " De Renunciatione Vulnerum," cites fatal cases from Forestus, Lusitanus, Ab Heers, H. Bartholin, and adds two from the Transactions of his own College of Leipsic, all fa-

* Quart. Journ. of Foreign Medicine, No. xviii. April 1823.

† Medic. Chirurg. Journ. No. xxv. Jan. 1818.

tal on or before the second day. Morgagni has a case fatal in thirty-six hours, from internal hemorrhage, although no large vessel was discovered to be wounded. The wound in the stomach was equal in breadth to that of a filbert *. Bonetus also mentions a sword wound which divided the vessels of the fundus, and terminated in death on the third day. Cowper, in his 35th Table, mentions two sword wounds of the stomach, in one of which a large quantity of blood was ejected by the mouth, yet the patient recovered before many days; another, in which the blood and aliment were discharged into the abdomen and destroyed him. Le Dran's eighty-ninth observation, communicated by M. Menteville, sworn surgeon of Paris, is that of a sword-wound penetrating the stomach and diaphragm. This is an instructive lesson, shewing the importance of abstemious regimen under which the patient was doing well up to the seventh day, and the fatal danger of a deviation, owing to which he died on the tenth. A small portion of omentum had passed through a slit of the diaphragm; the lungs were uninjured. Dr Thomson, after the battle of Waterloo, saw two patients recovering from wounds of the stomach; one of these wounds had been made by a lance, the other by a musket ball. In both, the contents of the stomach had come out for some days after the injury through the wounds, which were situated in the epigastric region †.

Many of these wounds have become incurable fistulæ for the remainder of life ‡; others, though of long standing, have been healed by rest and strict attention to diet. Ettmuller mentions a fistula of the stomach in a woman of thirty years of age proceeding from a chronic abscess, the consequence of a blow from the pole of a carriage when under ten years of age, which discharged the aliment continually, but was at length healed by long confinement to bed §.

Diemerbroek has another of the same kind ‖.

2. From a wound, with protrusion of the stomach.

An extraordinary narrative occurs in our Philosophical Transactions ¶, which I shall transcribe. "A lusty young negro man, returning home about noon, went into his house, when seeing some ripe plantains, he eat of them heartily. His father in law, about sixty years of age, coming home soon after, and

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* Epist. LIV. n. 8.

† Report of Observations in the Military Hospitals in Belgium, 1816.

‡ Miscell. Curios. Du. ii. an. 5. Schenck, Obs. Med. rar. p. 348. Bina exempla, Jul. Alexandrin, &c. &c.

§ Haller's Disp. Chir. tome v. p. 669. ‖ Anat. lib. vi. c. 28.

¶ Phil. Trans. Abr., vol. vii.

finding the young fellow had eat up his fruit, pulled out his knife, and gave him a desperate wound in the upper region of the belly; a vast gash being made in the stomach, insomuch, that the plantains which he had eaten burst out through the wound. The old man immediately fled for it, and the young fellow's companions hearing what was done pursued him. Perceiving them get ground of him, and suspecting their design was to kill him, he pulled out the same knife with which he had stabbed the other, and gave himself a desperate wound also in the upper region of the belly, his stomach being likewise seen, only with this difference, that the last wound was transverse, or from left to right, the first directly up and down; the old fellow was carried home, and lay in the same house where the other lay. This happened about noon, and Mr Forrest the surgeon, came not to dress them till between four and five; he stitched up both their stomachs entirely, and their bellies too, except only a small hole for suppuration; a fever seized each of them, and held them about a fortnight. The wounds were brought to a good digestion, and in about a month's time the young fellow went abroad, but the old man, who was in most danger, lay something longer; however, they were both perfectly cured, and have been very well ever since, though it is above fifteen years ago."

A more recent and not less extraordinary case, is reported in the Bulletin de la Faculte de Medicine, with observations by M. Percy. I regret, that not having access to this work, I am not acquainted with the tenor of M. Percy's observations. The substance of the narrative is as follows:

" A boy aged twelve, pruning trees, fell, about two hours after his dinner on the 18th of August, from the height of ten feet, upon a hedge. A pointed branch of hawthorn, nearly two inches in circumference, entered the stomach by the left hypochondrium. The organ presented itself through the wound by its great border, which was parallel to it, and an inch and a half in extent. When visited an hour afterwards by a surgeon, his shirt was soaked with blood, and the aliment previously taken. The retroversion of the borders of the rupture, prevented the spontaneous return of the viscus. Cold extremities,—contracted pulse,—altered expression,—a face bathed with sweat,—hiccup and vomiting on the slightest movement or pressure of the epigastrium. On cleansing the wound, a portion of the gastro-colic omentum came into view. Doubled waxed threads were passed by a curved needle through the gastric membranes, in a direction parallel to the external wound, and the stomach was readily reduced. The extremities of the ligature were retained externally, in order to prevent effusion into the abdomen, and the necessary sutures made upon the external wound. Charpée compresses and body bandages. Rigid diet.

19*th.* Fever. Venesection.

20*th.* Debility, with continued sleeplessness. Tension and pain of the abdomen relieved by an injection.

23*d.* Slight suppuration. No fever.

24*th* and 25*th.* Fluid drunk issued in part at the wound.

26*th.* Uneasiness, periodical colic at midnight, and for four successive days, with lancinating pains in the wound.

31*st.* One of the ligatures detached. Abundant suppuration, with some sphacelated portions of the gastric membranes.

Sept. 2*d.* All the ligatures detached. Separation of the gangrenous portions continuing. Wound contracting by adhesion of the stomach to the parietes. Insatiable hunger.

9*th.* Swelling of the umbilical region,—formation of abscess in left groin, which was opened on the 29th.

Oct. 4*th.* Closure of the abscess after the discharge of a large quantity of fetid pus.

30*th.* Sudden edema of the left side of the thorax, and abdomen.

31*st.* Swelling of the face with orthopnœa. Bark, and general frictions of camphorated spirit. Detachment of the dried cuticle. Return of free cutaneous perspiration and healthy secretions, and the boy soon regained his ordinary bulk and strength."

With these cases and that which stands at the head of this paper, as specimens of wound with protrusion, I must content myself, though a further research, as it would not be unproductive of materials even to a great amount *, could scarcely fail to be useful.

I think it appears, 1*st*, That the peculiar susceptibility of inflammation from exposure of the peritoneal surface, whether founded on the old notion of the hurtful properties of air on the interior of sores, or upon the injured integrity of the sac, has been much overrated. Dr Blundell, from his numerous experiments, comes to this conclusion. In Sir Astley Cooper's case of ligature on the abdominal aorta, and in a late case of extraction of an extra-uterine fœtus by Dr Mott of New York, although both patients survived long enough to be destroyed by peritoneal inflammation, none appeared. The very general success of the operation for hernia, when performed early, confirms this opinion.

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* Morgagni, Epist. LIV. n. 10., a complicated sword wound of the lungs, diaphragm and stomach on both sides, with protrusion of the omentum. See also Schenk, Vanderwiel, Valentini, Prax. Chirurg. Commerc. Liter. Norimb., &c. &c.

2dly, Not only Hippocrates * and Celsus † were in error in pronouncing all wounds of the stomach mortal, but Bohn, Teichmeyer ‡, and other qualifiers of these dogmas in their circumstantial exceptions went upon far too narrow an estimate of the resources of nature, and rather embarrassed than clearly established the prognosis §. Abundant examples have shewn, that neither the depth nor size, nor direction of the wound, nor the division of considerable bloodvessels and nerves, nor the protrusion even to strangulation, with a wound of this or other viscera, are unsurmountable obstacles to recovery. The unexpected failure of cases favoured by local circumstances, has been not less remarkable than the felicitous termination of the least promising. The attempt to form a prognosis on a hypothetical basis is little better than trifling, being subject to continual delusions as to the fact and exceptions as to the principle. In a practical view, a reliance on its infallibility may in certain cases damp the hopes, and possibly enfeeble the exertions of the practitioner; and it is therefore mischievous. In the case which stands at the head of this paper, I confess, that, with a strong faith in the restoring principle, I viewed the patient's situation as hopeless. Her chilled and deathlike aspect; the appearance of the protruded parts, discoloured and desiccated by an exposure and partial strangulation of near seven hours, and a leaking wound in the stomach, led me so to express myself to those around me. Such circumstances, however, operating upon a mind unfettered by authorities and dogmas, stimulate rather than depress the natural impulse to administer to the necessities of nature; and hence, "Nil actum reputans, si quid superesset agendum," the surgeon is in some danger of incurring the reproach of over anxious zeal in her service.

3dly, I believe that the mode of treating the stomach wound in this case, was the best under the circumstances. I had so healed a wound of the small intestine in a dog, and had afterwards seen an opening in the sound human intestine successfully managed in the same way at Guy's Hospital. If the wound be large, as an inch or more in extent, presenting a tumid eversion, the uninterrupted suture should be applied and cut, as was this ligature, close to the knot. We now know, that the principle of retaining the wounds of the viscus and the paries abdominalis in apposition by the extremities of the suture is errone-

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* Sect. vi. Aphor. 18. † Lib. v. c. 26.

‡ Instit. Medic. Legal. cap. 23. qu. 4.

§ The ablest and most comprehensive view of this subject, is presented by Fabricius in his dissertation "De lethalitate vulnerum ventriculi, secundum principia anatomica et medica expensa." Helmst. 1751.

ous; that nature provides safely for the discharge of the ligature internally with a less extensive and, therefore, less restrictive adhesion, removing, at the same time, all obstacles to the immediate healing of the parietal wound. No point of the pathology of wounded bowels of greater practical value than this has been established by experiment and observation.

I have never had occasion to apply a suture to a wound of the stomach; but I have ventured to recommend the uninterrupted suture in preference to the stitch, where one or other is required, on the ground of analogy, having found it in wounds of the intestines to produce a narrower, firmer, more uniform, and independent cicatrix. In point of security from effusion, as I have elsewhere said, provided complete apposition be obtained, it is of little comparative importance what mode of suture is employed. For example, if three single stitches include a portion of the labia sufficient to insure complete contact of the everted mucous surfaces of a divided intestine, this object is attained; but if, to avoid encroachment upon the calibre of the canal, such a narrow portion only of the everted lips is included, as is sufficient for the security of the suture, should it be uninterrupted, the retraction of the edges between the points of approximation by which the contraction of the extremities is prevented, will leave apertures for effusion. And this statement, which is not a speculation but a fact, is in no respect at variance with the results of certain experiments, in which three or four stitches have been found sufficient to procure union. In these examples, the whole breadth of the everted lips has been comprehended by the stitches, and their consequent complete apposition has been ascertained before returning the part into the abdomen;—a point which was purposely disregarded in my experiments: for, as it was found that no permanent adhesive union took place between the mucous surfaces, it was conjectured that their contact at all points might be unessential, especially as some writers and operators had boldly recommended a single stitch opposite the mesentery, as the only expedient necessary in a case of divided intestine; the egregious incorrectness of which advice these experiments fully demonstrated *.

It will be seen, that I have availed myself of this occasion, to offer a short vindication of my consistency, in a decided preference of the uninterrupted to the stitch suture †, in answer to the

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* In læsionibus exiguis sufficit partem læsam prominentem reponere. In gravioribus enteroraphiâ opus est. Hæc uti vulgo perfecte et complete perficitur, a recentioribus rejicitur ob symptomata quæ adferre solet inflammatoria. Hinc medium tantum vulneris locum acu perforandum et filo vulneri externo attrahendum. Junckeri Conspect. Chirurg. Tab. 55.

† Whoever will take the trouble to compare the cicatrix in the two cases, will be better satisfied than by any arguments of its superiority in all respects.

observations of Mr Samuel Cooper, in the last edition of his Dictionary: and I shall be happy if it prove satisfactory to an author, whose industry and intelligence have so deservedly obtained for him the respect and gratitude of the profession,

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ART. XIV.—*Case of Spontaneous Dislocation.* By J. GIBBON M. D. Swansea.

THE following case occurred in our small Infirmary lasty ear, which I should hardly think worthy of being inserted, but for a curious trial, or prosecution, of a surgeon near Bristol about the same time, for neglecting to reduce a dislocation of the hip joint. In that case, the surgeon, I believe, pleaded, that he had properly reduced the dislocation, but that, from consequent neglect, the bone became again displaced. From what follows, you will have ample proof of the probability of his defence being founded in truth.

"A man, about 60 years of age, was employed in pulling down a wall for a gentleman near this town. Owing to incautiousness the wall fell upon him, and dislocated the right shoulder and left hip joint. He was directly conveyed into the Swansea Infirmary, where both dislocations were reduced. Proper bandages were applied, and the man appeared to be going on well for a few days. Within a week, however, the left leg gradually shortened, the foot turned inwards, and the head of the femur was found to be quite out of the acetabulum, and upon the dorsum of the os ilium. With considerable difficulty, and with the aid of pulleys, the reduction was again effected.

"In order to prevent another spontaneous dislocation, as it were, the limbs were most carefully put in the widest opposition possible, and several bandages applied, which prevented the slightest attempt to motion of the lower extremities. To the great mortification of all parties concerned, within a fortnight the head of the femur had again left its socket, and the motions of the joint, which had been quite restored after the two former reductions, were now lost. The poor man was again put to the torture of being stretched upon the pulleys, and after much suffering a complete reduction was again effected. Upon the presumption of the upper part of the cup being broken down, so as to offer very little resistance to the muscles, which acted in drawing upwards and backwards the head of the femur, it was determined to separate the limbs considerably, and firmly to secure the man to the four corners of his bed. This plan perfectly succeeded.

The bone slipped out no more; and after a confinement of three or four weeks, in this irksome position, to which the man most cheerfully acceded, we all had the satisfaction of witnessing his perfect recovery.

"I may mention, as a singular coincidence, that the wife of this poor man was brought into the same infirmary for a strangulated femoral hernia, whilst he was thus suffering. Our house surgeon, Mr Asler, very ably operated upon her, removing a portion of sphacelated omentum, and returning a disordered portion of intestine.

"She soon recovered, and left the house with her husband."

ART. XV.—*On Aneurism.* By ROBERT ALLAN, Esq. F.R.S.E. Surgeon to the Royal Infirmary, and Lecturer on Surgery in Edinburgh. In a Letter to one of the Editors.

SIR,

THERE is no department of surgery that has been so fully elucidated as that of the arteries; and there is no operation in which the powers of the animal economy are more beautifully displayed, than in the operation for aneurism. Within the last thirty years, by the almost exclusive labours of the surgeons of this country, our knowledge of the diseases and accidents of the arterial system has arrived at a degree of perfection unknown in any other branch of our science. In the year 1795, at the time that I was apprentice to my much valued friend Mr John Bell, he published his book on Wounds. In this work, he pointed out the freedom and value of the arterial inosculations round the hip and shoulder joints, and strenuously inculcated a perfect reliance on the power of these inosculations to carry on the circulation, when the main artery was obstructed. His reasonings tended greatly to excite the attention, as well as to settle the minds of surgeons, and unquestionably led directly to the accomplishment of those brilliant operations for aneurism, which constitute the glory of English surgery. The year following Mr Bell's publication, Mr Abernethy tied the external iliac artery; and although his first two cases did not recover, still they proved the power of the collateral arteries to maintain the circulation in the limb, when the main artery was obstructed. In 1806, Mr Abernethy a third time tied the external iliac with success; which operation was in the same year successfully repeated by Mr Freer of Birmingham, and shortly afterwards by Mr Tomlinson, and other surgeons. Every accessible artery of the human body has now been tied: the anastomosing branches

have been found in all circumstances fully adequate to maintain the circulation; and I believe, in the operation for aneurism, that, if we do not separate the artery from its surrounding connections, our success will be equal, whether we use a small ligature or a thick one,—whether we pull the ligature with such a degree of force as to divide the internal coats of the artery, or only so tight as to embrace the vessel, and lay its sides in contact,—whether we use one ligature or two,—whether we cut the artery betwixt the ligatures, or leave the vessel undivided,—and whether we apply the ligature above or below the aneurism, provided, in the latter case, that no important branches are sent off by the sac, or by the artery betwixt it and the ligature, which would prevent the circulation in the tumor being obstructed *.

When it has been found necessary, in an aneurismal limb, to tie the artery at a high point, surgeons have been chiefly afraid of gangrene; but this is a rare occurrence. In truth, the death of the limb is the least of the dangers arising from the operation for aneurism. Few cases of gangrene following the operation have occurred; while the death of patients can be often traced to secondary hemorrhage, or to the irritation induced by the inflammation and suppuration of the sac, and, on some occasions, to less obvious causes.

As practical views of a subject are always useful, I shall give you, somewhat in detail, an account of five cases of aneurism which came under my care during the last summer, and for which I tied the femoral, the brachial, and the external iliac arteries; and although some of the patients did not recover, the cases were all successful, with regard to the establishment of the new circulation. Surgeons are in general so vain of their achievements, that, in our journals, we seldom see any thing recorded except successful cases. But, Mr Editor, my days of knight-errantry are over; and I purpose to present you, from time to time, with some accounts of my unsuccessful as well as my successful cases, the former of which may convey perhaps the more instructive lesson of the two. A patient is often led to believe that his surgeon has rescued him from death by a grand operation, while in truth the poor man has been indebted to nature for a fortunate escape.

I am, Sir, your most obedient servant,

Robert Allan.

57, York Place,
Dec. 17. 1825.

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* I have been long impressed with the belief, that the ligature would be equally effectual when applied beyond the tumor, as betwixt it and the heart; and in the 2d volume of a System of Surgery published by me in 1821, I remarked, that "if there happened to be no considerable branch coming off from the sac, or from the artery betwixt it and the ligature, *there is little reason to doubt*, that this operation will be as successful as when the artery is tied

Case I.—*Popliteal Aneurism.*

James Pringle, aged 39, a cow-feeder, was admitted into the Royal Infirmary, March 10. 1825, with a pulsating tumor in his right ham, of such a size as to fill up the space between the hamstrings, but not projecting beyond them, excepting at the moment of pulsation. Upon the slightest exertion, the pulsation became very strong, and was then very apparent to the eye. The tumor was accompanied with much pain of the whole leg, but particularly of the ham, and lower part of the calf. This pain was very severe after continued exercise. The motions of the knee were greatly impaired: when he walked, he kept the limb bent; but, if desired, he could extend it. General health good. Pulse 90.

Three weeks before admission into the Hospital, the disease made its appearance. After a hard day's labour, he had retired to rest, and was awakened in the middle of the night with a violent pain in the ham; but there was no swelling or pulsation at this time apparent. He paid little attention to it till about a fortnight after, when he was again attacked with great pain; and upon applying his hand, he now felt the tumor beating. The swelling and pulsation continued to increase. When he came under my care, the circulation in the limb was so perfect, that pulsation could be felt in the anterior and posterior tibial arteries on the fore part of the foot and behind the inner ankle.

After confining Pringle for a few days to the horizontal posture, and giving him two doses of sulphate of magnesia, on the 14th of March, by the advice of a consultation, I tied the femoral artery. I commenced my incision about two inches above, and carried it to an inch below the middle of the thigh. This incision I made in a straight line, so as to cross the fibres of the sartorius muscle. When the muscle was exposed, I turned aside its inner edge, and brought the artery into view. By a few scratches of the scalpel, I opened the capsular sheath, about the middle of the external incision, and passed from the inner side a blunt aneurismal needle, armed with a ligature of three threads. The ligature was tied. The edges of the wound were then brought together, and retained by means of adhesive plaster and a uniting bandage. The limb was wrapped in flannel, and a bottle of hot water was applied to the foot. Half an

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above the aneurism." The manner in which the cure of aneurism is effected, *first*, by the coagulation of the blood in the sac, and, *secondly*, by the inflammation and closure of the artery, justifies this conclusion; and I may remark, that Mr Wardrop of London has lately cured an aneurism of the carotid artery, as effectually, by placing the ligature beyond the aneurism, as if he had tied the vessel betwixt the tumor and the heart; and this, on many occasions, I am persuaded will be found to be the safest operation.

hour after the operation, the heat of the aneurismal limb, at the ankle, by Fahrenheit's thermometer, was 79°, and that of the sound one 84°. At half-past six in the evening, the patient expressed himself comfortable. The limb felt warm; its heat continued at 79°, while that of the sound limb had risen five degrees since the last report.

March 15.—He had slept well from a draught, and had no uneasy sensations: his pulse was 80, and strong; the heat of the aneurismal limb 81°, and that of the sound 85°; but in the evening, the heat of both limbs was 90°. The circulation at this time was a little quickened, and the surface warm and moist. The tumor in the ham had collapsed considerably. His draught was ordered to be repeated, and an ounce of castor oil to be taken in the morning.

On the 16th, it was found that he had passed a good night, and that he did not complain of any pain. No pulsation could be felt in the tumor. The heat of both limbs was 92°, the pulse 88, full and strong, the tongue white; he had some thirst, and there was a slight blush of inflammation round the wound. The castor oil had not operated. Twelve ounces of blood were ordered to be taken from the arm, four ounces of the infusion of senna to be given immediately, and wet cold cloths to be kept constantly applied to the wound. In the evening, the fulness of the pulse was reduced, and the febrile symptoms moderated. The inflammatory blush round the wound had disappeared, and the heat of both limbs was 91½°. No motion in his bowels. A purging glyster was ordered to be immediately administered, and a cup of the infusion of senna, with a little of the sulphate of magnesia, to be taken every three hours, till the bowels were freely opened.

17th, Had slept little during the night, and was restless and uneasy: there was a slight blush of redness above the wound, with some starting in the limb, but no pain; his pulse was 100, full and strong, accompanied with headach, foul tongue, and much thirst, and the temperature of both limbs was 91¼°. Had one copious evacuation during the night. He was ordered a purging enema, from which he had two copious dejections. The dressings were taken off, and the wound was found adhering, except at the point which gave passage to the ligature, and from this about two tea-spoonfuls of pus were squeezed out.

18th, He had slept little during the night, the discharge from the wound was more considerable. His headach was much relieved by a spontaneous discharge of blood from the nose to a small extent. Pulse 96, less full and strong. A cathartic was ordered.

On the 19th, it was found that there had been four copious dejections from his bowels, and that all the febrile symptoms were considerably abated.

On the 20th, his pulse was reduced to 80; there was no pain or inflammation of the wound, and the heat of both limbs was 94°.

From this time there was no febrile action; every thing went on well, and the ligature came away on the 29th, the sixteenth day from the operation. He left the hospital on the 1st of April, at which time the tumor was much reduced in size, and no pulsation could be felt in it, nor in the anterior or posterior tibial arteries. In a short time he was perfectly well.

Remarks.—The artery was tied a little above the middle of the thigh; it was separated from its surrounding connections to no greater extent than just to allow the ligature to pass. The ligature, consisting of three threads, was pulled moderately tight, but not with such force as to divide the inner coats of the vessel. I saw Pringle five months after his dismissal from the hospital, when I found the tumor in the ham reduced to the size of a filbert. He at that time was employed in breaking stones on the highway, but when he worked long, he complained of uneasiness and weakness in the limb.

Case II.—*Brachial Aneurism.*

Richard Givan, a labourer, aged 19, was admitted into the Royal Infirmary, on Wednesday, April 6. 1825. At the bend of the right arm, near the insertion of the biceps muscle, there was situated a circumscribed pulsating tumor, about the size of an orange. The pulsations were strong, and corresponded with those of the other arteries. The surface of the tumor was inflamed, and gave much pain on pressure. There was a general inflammation and swelling of the fore arm, and he complained of a numbness in the hand and fingers. Pulsation at the wrist, both in the radial and ulnar arteries was very distinct. The mark of a wound, which indeed was not quite healed up, was seen near the centre of the tumor, which he said was produced by a lancet. He complained of a sharp pain in his side.

Givan reported, that, on the Sunday preceding his admission, an attempt was made by a young gentleman to perform venesection for the complaint in his side. The blood gushed out with great violence, and was with difficulty restrained, by the application of a firm roller, which was removed next day, when it was found that a small tumor had formed at the point where he was bled, and which rapidly increased in size.

Upon his admission into the hospital, warm saturnine fomentations were applied, on account of the inflamed state of the tumor and fore arm, a brisk cathartic was exhibited, and the limb was ordered to be kept at rest. In the course of a few

days the inflammation of the aneurismal tumor had subsided. An attempt was then made to cure it by compression, by means of a cushion and screw, but the pressure was productive of so much pain, that it could not be endured.

On the 12th, he complained of a short tickling cough, accompanied with much pain of side, and his pulse was 100, full and strong. He was bled to twenty-six ounces with much relief.

13th, He had passed a good night, and his pulse was 80, but his cough was still troublesome; belly freely opened. In the evening there was an increase of the pain of side; his pulse had risen to 100, and was full; twenty-four leeches were applied to the affected side.

14th, Had slept well; pain in the side almost gone, pulse 84, and soft; belly freely opened. In the evening pain of side had rather increased, and the pulse was full and strong. Venesection was again recommended, but he would not submit. Ten drops of the tincture of digitalis were ordered to be given every four hours.

15th, The pain of side still continued; his cough was troublesome; pulse 84, and full. The digitalis was ordered to be continued. Six ounces of blood were taken from his arm; and he had five grains of calomel.

16th, Pain of chest was almost gone; cough less troublesome; pulse 96, full and strong.

On the 17th, the pain of side was felt only on taking a full inspiration, or on coughing; and his pulse was 84. The surface of the tumor was observed to be inflamed, the integuments were very thin, and a distinct fluctuation could be felt over the scar of the wound. I therefore, after consulting with my colleagues, applied a tourniquet to the upper part of the arm, and made an incision through the integuments covering the aneurismal sac, three inches in length, when a wound was perceived in the fascia, closed up with coagulated blood. Into this I introduced a director, and, with a probe-pointed bistoury, divided the fascia upwards and downwards the whole length of the tumor. I removed a large coagulum with my fingers, and cleared out the sac with warm water and sponge, when the brachial artery was distinctly seen at the bottom of the wound, having an opening in it half an inch in length. By bending the fore arm two ligatures were easily passed from the inside, by means of a blunt aneurismal needle, one above and one below the wound in the artery. After tying the upper ligature, the tourniquet was loosened, when the blood flowed freely from the lower part of the wound in the artery; the lower ligature was then tied, the edges of the wound were brought together by means of adhesive straps; a compress and roller was applied; and, upon laying the fingers

on the radial artery at the wrist, pulsation was distinctly felt. In the evening, the heat of both hands was 94° ; he had some cough, and complained of pain of side ; pulse 84, very full and bounding. Venesection was ordered.

18th, Only six ounces of blood were drawn last night, but twenty leeches were afterwards applied to the chest ; pain of side entirely gone ; heat of both hands 97° ; pulsation distinct at the wrist ; pulse 80, very full and bounding. Two dejections since the operation.

19th, Pain of the chest was so entirely gone, as not to be felt on the fullest inspiration ; heat of both hands 96°. Aneurismal arm felt numb ; pulse 84. Early in the evening, he complained of pain in the lower part of the belly, which was much increased on pressure ; his pulse was full and strong. Twenty leeches were applied to the belly, and two colocynth pills were ordered to be taken every three hours till the bowels were freely moved. At 10 p. m. the pain continued unabated ; thirty more leeches were therefore applied, and a purging enema administered.

On the morning of the 20th, it was found that the bowels had been moved three times during the night ; the pain of abdomen was diminished, although still felt on pressure and on coughing. Fifteen leeches were therefore applied to the belly ; they were repeated during the day to the number of twenty ; and an ounce of castor oil was administered. In the evening the pain had shifted, and was now situated over the symphysis pubis ; pulse 90, full and bounding. A blister was applied to the pained part.

On the 21st, about nine in the morning, a considerable hemorrhage was observed from the wound. A tourniquet was immediately applied to the arm, and my presence was requested. With the assistance of my friend Dr Ballingall, I enlarged the wound upwards, and exposed the artery, when an opening was observed in it immediately above the upper ligature. Another ligature was passed round the artery, about an inch above the opening, when the hemorrhage immediately ceased ; the wound was filled with lint, and its edges supported by means of adhesive plaster, compress, and roller. It was calculated that the patient had lost about twenty ounces of blood by the hemorrhage. During the day he complained of coldness of the hands, but of very little pain of abdomen. The pulsation of the radial artery in the aneurismal limb was quite distinct ; and, in the evening, his pulse was full and bounding.

On the 22d, he still complained of pain in the lower part of the abdomen, more severe on coughing, or on pressure. His pulse was 100, full and bounding. Fifteen drops of the tincture of digitalis were ordered to be taken every three hours.

23d, He had passed a bad night, with frequent starting; his arm gave no uneasiness, but he still complained of a little pain in the abdomen, when pressed on. Complained much of nausea, but unattended by vomiting. Tongue foul; he had five dejections since last report; pulse 90, full and bounding. The middle ligature, which was originally the upper one, came away this day; the wound did not look well.

On the 24th he complained much of nausea, as well as of some pain of his chest and abdomen on coughing; the wound looked better; pulse 96, and softer. There was no motion of the bowels; he had, therefore, in the evening, 3ij of the compound powder of jalap.

On the 25th had slept little; there was more pain about the chest, attended with some bloody expectoration, and the pain of the abdomen was still felt on coughing. There was constant nausea, with a little vomiting. Had two copious dejections; pulse 96, full and strong. The lower ligature came away this day, and the wound looked well. The digitalis was omitted. Ten ounces of blood were ordered to be taken from the arm, and twenty leeches to be applied to the side.

26th, Only six ounces of blood had been abstracted by the lancet; there was less pain in the chest, but still some bloody expectoration; pulse 64, and slightly intermitting; much nausea. The upper ligature came away this day, and the wound looked well.

On the 27th, the pain of the chest, as well as that of the belly, was quite gone,; pulse 68, full, and without intermission. The bloody expectoration still continued; bowels open. In the evening the pulse had risen to 90, and was full and strong, the fifteen drops of digitalis were therefore repeated every three hours.

On the 28th, he complained much of nausea, but there was no vomiting; pulse 60, and full; belly open. The digitalis was omitted. In the evening the pulse was 58, and intermitting.

30th, From this time, the pain of the chest and abdomen entirely disappeared. The pulse continued for several days about 60, occasionally intermitting, when it rose to 80. The wound assumed a healthy granulating appearance; the bowels continued open, and the appetite improved. He was much inclined to sleep.

On the 8th of May, he said "He felt as well as ever he did."

On the 22d, the wound was completely cicatrized; and, on the 1st of June he was dismissed from the Hospital.

Remarks.—This case is most instructive, and claims the regard of the physician as well as the surgeon. The points most

worthy of observation seem to be the following: 1*st*, Brachial aneurism, or that species of the disease which is produced by a wound, being the most proper for compression, I first tried this method of cure. The pressure was made upon the tumor by means of a cushion and screw; and applied so as not to compress the arm in its whole circle; but the pain and inflammation which it excited was so great, as to oblige me to remove the pressure at the end of two days. *2d*, The time at which the operation was performed was most unfavourable, as he then laboured under an inflammatory diathesis; but we were compelled to operate, in consequence of the integuments covering the aneurism having become very thin, of the scar having assumed a pointed form, and of a distinct fluctuation perceptible at this point. Accordingly, when the skin was divided, it was found that the wound in the fascia had not healed, but was closed by a coagulum; and this, with the cuticle, formed the only barriers against hemorrhage. *3d*, The tying of the brachial artery above the tumour, is no doubt, in general, the preferable operation, because this aneurism is seldom of great magnitude, and the wound in the fascia commonly heals along with the integuments, forming a strong resistance to the increase of the tumor; but, in the present case, the wound in the fascia remained open, leaving nothing to restrain the blood but the thin cuticle, which was threatening to give way: tying the artery, therefore, above the tumor, would have been no security against hemorrhage. 4*th*, The aneurism was the consequence of venesection, performed for the cure of inflammation in the chest. The patient was a strong young man, and the inflammatory diathesis was very marked. All the arteries of his body throbbed violently, and the beating of many of them was perceptible even to the eye. The inflammation was with difficulty subdued, and this was effected, not so much by the direct abstraction of blood, as by overpowering the vascular action, through the medium of the nerves, by means of digitalis. In inflammatory affections of the chest and abdomen, blood may be abstracted till the patient fairly sinks under the use of the lancet, and yet the inflammation not be subdued; narcotics will be found, therefore, to be powerful auxiliaries in overcoming vascular action, by lessening the nervous influence. 5*th*, The secondary hemorrhage occurred the fifth day after the operation, and evidently was not the result of ulceration of the artery, but was produced mechanically, by the impulse of the blood upon the ligature; and most likely, at this time, would have followed the application of a ligature to any of the larger arteries. It is worthy of remark, that, in this case, all the ligatures came early away.

Case III.—*Popliteal Aneurism.*

Adam Todd, a cotton weaver, aged 34, was admitted into the Royal Infirmary on the 6th of April 1825. In the lower part of the ham of the right leg there was situated a large, hard, pulsating tumor. The tumor was about the size of a goose's egg, and had a thrilling feel. The pulsations corresponded with the beat of the radial artery, and were so strong as to move the limb. The disease was accompanied with considerable pain, extending in every direction; and the leg especially, when he worked, swelled to a great size, pitting on pressure. He had no sense of numbness in the toes, and his general health was good. The tumor first commenced about two years before, without any apparent cause, except that he had been standing much for two or three days, with his limb always on the stretch. He reported, that, on the first appearance of the tumor, it was only of the size of a nut,—that the pulsations were much stronger in it than at the time he came into the hospital,—and that it gradually became larger, the beating in it decreasing in proportion to its increase in size.

On the 9th of April, I tied the femoral artery at the same place, and in the same manner, as in Pringle's case. After the ligature was tied, a small vessel, coming off from the fore part of the artery, was seen to ooze out blood; it was about the size of a surgeon's small probe, and had been cut in opening the sheath. Another ligature was therefore passed round the femoral artery, half an inch farther down, so as to include this vessel betwixt the two ligatures. The edges of the wound were brought together, and secured by means of adhesive plaster and bandage. After the patient was put to bed, he had a shivering fit; bottles of warm water were applied to the feet, the aneurismal limb was wrapt in flannel, and a draught containing 35 drops of laudanum was exhibited, which soon restored the natural warmth.

At eight o'clock in the evening the patient was free from pain. The heat of the sound limb was 98°, and that of the aneurismal limb 100°; pulse 80, and of natural strength.

On the 10th, he complained of pain in the wound, from which there had been a considerable oozing of blood, and of numbness in the affected limb; pulse 88, and of good strength; heat of the sound limb 90°, that of the aneurismal limb 92°; no pulsation in the tumor. As there had been no motion in his bowels from the time of the operation, three colocynth pills were prescribed. At eight o'clock in the evening, he complained much of headach; pulse 100, full and strong; tongue foul, with much nausea, and thirst; the heat of the sound limb 96°, and that of the aneurismal 97°. As he had vomited the pills, an enema was administered, which produced a copious evacuation.

Eighteen ounces of blood were taken from his arm, with some relief; but, as the headach continued, and the pulse became fuller and stronger, ten ounces more were abstracted at twelve o'clock at night, and a colocynth pill was ordered to be taken every three hours till the bowels were freely moved.

On the 11th he had slept very little, and complained much of headach, with nausea and vomiting; there was great tenderness in the thigh above the wound, and in the groin, with much general uneasiness. This morning there were two evacuations, of a dark colour, from the bowels; tongue cleaner; pulse 84, and weaker, heat of the sound limb 94°, that of the aneurismal 96°. The wound was dressed this day, its edges had not adhered, and there was a little discharge. A brisk purge of calomel and jalap was prescribed. At 8 o'clock in the evening the nausea, with tendency to vomiting, still continued; pulse was 100, full and strong, and there was no evacuation from the bowels. Sixteen ounces of blood were ordered to be taken from the arm, and a cathartic glyster to be immediately administered.

On the 12th his headach was much diminished, but the nausea and vomiting continued; there was great tenderness above the wound on pressure, with slight redness of the skin; but no redness of the lower part of the thigh or leg, and no pulsation in the tumor; pulse 114, and strong; four dejections of a dark colour, during the night; heat of the aneurismal limb 88°, that of the sound 94°; wound looked well, and the discharge was in small quantity.

On the 13th the irritability of his stomach was so great, that it rejected every thing the moment he swallowed it; there was still a little tenderness above the wound, but no redness of the surface; pulse 96; heat of the aneurismal limb 78°, and of the sound 81°; there was a copious discharge from the wound, the surface of which looked well; he was ordered the saline mixture in a state of effervescence.

On the 14th he had passed a tolerable night; his headach was almost gone, there was still tenderness above the wound, with much discharge; and the nausea had almost disappeared. The tumor in the ham was nearly half its former size, and without the least pulsation; pulse 96, and soft.

On the 16th the nausea was entirely gone; there was still some tenderness above the wound, which looked well, although the discharge was rather profuse; heat of both limbs the same, pulse 88, belly open.

From this time he rapidly recovered, the tumor in the ham quickly diminished in size. On the 22d the upper ligature came away, and the lower one on the 27th.

On the 14th of May the wound was nearly cicatrized; and he was discharged from the Hospital on the 19th, when the tumor

was much diminished in size, and without pain or pulsation. At this time no pulsation could be felt in the anterior and posterior tibial arteries.

Remarks.—The chief circumstances worthy of remark in this case, are the duration of the aneurism, and the application of the two ligatures. The aneurism had existed for two years, and in such a case there is danger of the tumor having produced caries of the bone, and irretrievable injury to the knee joint.—Two ligatures should always be applied, when the surgeon finds that he has inadvertently, or by mismanagement, insulated the artery to any extent; and the necessity of the measure is also called for, when any arterial branch is divided in opening the sheath, and when it is distinctly seen giving out blood.

(To be continued.)

MIDWIFERY.

ART. XVI.—*Case of Laborious Labour, followed by Emphysema and Lameness of the Right Sacral Extremity.* By WILLIAM CAMPBELL, M. D. Fellow of the Royal College of Surgeons, and Lecturer on Midwifery, &c. Edinburgh. In a Letter to the Editors.

GENTLEMEN,

THE following being a detail of one of those cases which are of rare occurrence in practice, should you deem it, with the accompanying remarks, worthy of a place in your Journal, I shall feel obliged by your inserting them.

On the evening of Sunday, April 3. 1825, I was requested to afford assistance to Mary Marley, a stout unmarried woman, twenty-five years of age, said to be in labour of her first child, and residing in the Castle Wynd, Grassmarket. My assistant, Mr James Butter, surgeon, visited her, and found that her uneasiness was owing to spurious pains. The ensuing evening, however, between nine and ten, uterine action commenced; and as the dilatation of the os tincæ was extremely tardy, the patient was twice bled during that night and following day, both detractions amounting to about ℥xxx.—*6th*, At noon, I saw this woman for the first time; found the os uteri fully dilated; the head, which seemed large, well engaged in the brim of the pelvis, and the bones overlapping to a very considerable extent. As the strength

was good, the advance of the head next to imperceptible, and the linings of the pelvis exposed to great pressure, the patient was again bled to ℥xxx. It was not until 4 P. M. of this day that the head was completely lodged in the pelvis.—*Thursday, 7th.* 2^{h} 30′. A. M. a large stillborn male fetus was expelled by the natural efforts; the uterus contracted kindly, and the placenta was excluded without assistance, notwithstanding the protracted sufferings of the patient.

Immediately after delivery, a violent paroxysm of coughing supervened, which almost threatened suffocation; but every thing was soon restored to a fair train, and we took our leave. The patient was visited at noon, when it was discovered that the face and neck were much swelled, and that this swelling had diffused itself over the trunk of the body, occasioning considerable alarm to the attendants. When the hand was applied to the surface of the parts most tumefied, and even to the upper and lower extremities where tumefaction was scarcely apparent, a sensation of crepitus was distinctly felt. The cough was somewhat troublesome, and breathing a little oppressed, but the condition of the pulse was as favourable as could be expected under existing circumstances. ℞ Ol. ricin. ℥i. statim, et haust. sequentem ad ℥ss, tertia quaque hora, pro tusse habeat: ℞ Mucil. Acaciæ arabicæ, Syrupi aceti, utriusque ℥ii.; Vin. tart. ant. ℥ii., Aq. pur. ℥iv. M.—*April* 12. Swelling, crepitus, and cough, had almost ceased; the dyspnea was never so urgent as to require any active treatment,—a circumstance for which the free depletion practised during parturition will account; and the patient continued in a progressive state of improvement.

There was nothing remarkable in the case after this last date, except the lameness of the extremity,—an affection on which I may offer some observations at a future period. As to the emphysema, I am not certain at what precise moment the injury occurred which gave rise to it; for the patient not only exerted her lungs immoderately, but made the most violent efforts to bear down throughout the whole of the process; but I presume the accident must have happened towards the conclusion of the labour, as there was no swelling complained of when we took our departure, although we had continued in attendance for some little time after every thing was concluded. I have been the more particular in describing the nature of this woman's labour, since it furnishes an excellent illustration of the benefit to be derived from the free use of the lancet, and shews how much suffering a patient can support, with impunity, in the parturient state, when carefully conducted. The case was diligently watched by Mr Butter and Mr Edward Hedley alternately; I was only in constant attendance for the last four hours. Although well persuaded that the fetus, from its long retention, would be

lost from pressure; yet I was obliged to remain a mere spectator, for the pelvis was so completely occupied by the head, that forceps could not be applied without unwarrantable exertion. The fetus must have weighed at least eleven pounds. The cranium, which is now in my possession, is incredibly distorted, and exceeds the usual measurement from chin to vertex, by an inch, and from one parietal protuberance to the opposite, by three-fourths of an inch.

Of emphysema from external injuries of the chest, every periodical work abounds with details of cases; but of this affection supervening to parturition, there are few examples recorded. It has been produced by very opposite causes; *first*, violent action of the lungs, and general restlessness, from the patient making an intolerable noise during parturition; and, *secondly*, the individual persisting in obstinate silence while in labour.

In the 7th volume of the Edinburgh Medical and Surgical Journal, a case is related, which, similar to the one that I have just described, appears to have been occasioned by the first cause; for, to use the words of the gentleman who details it, the patient "made the most gigantic exertions, not only during a pain, but after the pain had entirely gone off." A case is stated in the 1st volume of the London Medical Communications, by Dr Simmonds, where emphysema was occasioned under similar circumstances, during a severe and tedious labour. When the conduct of the patient during parturition has been of the character already described, emphysema may be supposed to arise from a laceration of the lining membrane of the larynx, trachea, bronchial tubes, or its cells, and the consequent escape of air into the surrounding parts.

A case occurring from the second cause, is related in the 2d volume of the London Medical Facts and Observations. When the fetus was expelled, the mother exclaimed that she should be suffocated. It was afterwards ascertained, that this patient "buried her face, during every pain, in the woollen coat of a woman who sat on the side of the bed." Many females, instead of calling out vehemently, continue obstinately tacit during labour, as in this last case, from a desire to be thought to have conducted themselves as good patients. While the uterus contracts, the abdominal muscles are called into action by consent, by which the ribs are drawn down as in expiration, and the lungs compressed. The compression of these organs, while in a state of distension, may cause a rupture of the air-cells, and consequent diffusion of their contents into the surrounding cellular membrane, which, by obstructing their natural expanse, produces dyspnea.

By Hippocrates, the term emphysema was intended to apply to a swelling of the abdomen, probably what is now termed tympanites. Little was known of emphysema proper, for a long

period; and it was accident which at last led to its discovery. Accordingly, Riolan relates the case of a person for whom *paracentesis thoracis* was resorted to, upon the supposition of his being affected with hydrothorax; but when the operation was performed, he was not a little surprised to find, instead of water, a quantity of air rush out of the wound. Combalusier admits that the same thing happened to himself. Neither of these men, however, seemed to benefit much by their discovery or mistake; for it was left for Monro *Secundus*, in 1760, to recommend *paracentesis* as a mode of relief for urgent cases of emphysema. Puerperal emphysema, so far as I have been able to ascertain, has always appeared a mild affection, and all the symptoms have ceased within a week, simply by the use of venesection and purgatives.

2, North St David Street,
November 10. 1825.

Art. XVII.—*A case in which the Cesarian Section was successfully performed for both Mother and Child.* By Francis Anthony Vonderfuhr, Surgeon and Accoucheur at Dahlen. Communicated, with Additional Remarks, by Dr Ebermarer of Dusseldorf. From a Prussian Journal.

CASES but too frequently occur, where the Cesarian section, though performed by skilful and experienced accoucheurs, and notwithstanding the various methods of treatment adopted, proves fatal to the mother, and sometimes to both mother and child. This is so well known, that it must be gratifying to the physcian, accoucheur, and every friend of the human race, to be informed of a case where this operation was performed with facility, and mother and child saved, without any accident supervening, or internal remedies having been employed.

The case, as related by Mr Vonderfuhr, is as follows.

"On the 28th April 1823, I was called, at 6 o'clock A. M. to the parish of of Dahlen, $2\frac{1}{2}$ leagues distant, to give assistance to a woman in her first childbed, who had been three days in labour. On my arrival at the house at $\frac{1}{2}$ past 9 o'clock, I found an unmarried woman, about 31 years of age, feeble and emaciated, only 3 feet 8 inches high, standing at the fire, supported by her father, in whom all the appearances of formerly having laboured under rachitic affections were observed in a high degree. The midwife informed me that the labour pains had commenced three days ago, and that the waters were discharged the day before. I learned from the patient herself, that, during the whole period

of pregnancy, she had enjoyed tolerable health, with the exception of being constantly annoyed with fluor albus.

" The malformation of the pelvis was apparent at first sight; the left side projected considerably, while the right was depressed; we immediately concluded that there was great irregularity of the pelvis.

" I endeavoured, by a careful examination, to ascertain exactly the state of the pelvis, its outlet, and situation of the child. The pubes appeared to be strongly pressed inwards, and the conjugate diameter measured with my fingers was not quite 2 inches. I could with difficulty introduce two of my fingers; it was rendered, however, more difficult, by the head being so closely impacted. The os tincæ was completely open, the waters discharged, and an oblong swelling, arising from the external coverings of the head, protruded. From the swelling of the integuments of the head the fontanels were not very evident. The labour pains were very severe, and in rapid succession, not permitting, in any position, the least repose. I was perfectly convinced of the child being alive, by its evident motion, and likewise by the appearance of the patient herself, who felt from time to time the movements of the infant. From the first, it was sufficiently evident that a living child could not be born, and that the operation of embryotomy would be extremely cruel, and dangerous to the mother. In this case, then, the Cesarian operation was the only means indicated for the preservation of both mother and child.

" The Cesarian operation being of itself extremely dangerous, the prognosis in this enfeebled person became particularly so. No time was to be lost. I made her and her father acquainted with her unfortunate situation, and proposed the operation.

" The patient was, without much difficulty, prevailed on to submit to the operation, in order to be relieved from unsupportable sufferings.

" The state of the case was immediately made known to Dr Kopstadt in Reidt, the physician nearest at hand, and we requested his speedy attendance. He proposed the further assistance of Mr Buckling, Surgeon at Dahlen.

" We all met about 2 o'clock, and having emptied the bladder and rectum, and prepared every thing necessary along with the bandages for the operation, we proceeded in the following manner.

" A sack of straw was put on a common table, on which the patient was laid nearly in a horizontal position. The linea alba was selected for the line of incision, and while Dr Kopstadt supported the abdomen on each side, I cut through the internal integuments, about $\frac{1}{4}$th of an inch below the umbilicus, and continued the incision to an inch above the pubes; I then

made a small incision into the muscular parietes and peritoneum at the upper part of the wound, into which I introduced the index finger of the left hand as a conductor, and by means of a blunt pointed bistoury, enlarged the wound of the peritoneum to the size of the external opening. I had proceeded half way with the incision, when about half an ounce of clear water ran from the abdomen, which Dr Kopstadt was afraid had proceeded from a wound of the urinary bladder: his fears were, however, groundless. The incision through the integuments of the abdomen was about six inches. The uterus, of a purplish colour, now became apparent through it. Into this I also made a small incision, near to the lower margin of the external; again inserted the index finger of the left hand, and enlarged the wound of the uterus upwards, about five inches. We found, as above related, the waters evacuated, and the back and buttocks of the child immediately presented. The incision through the uterus did not affect the situation of the placenta, and no hemorrhage ensued. I seized hold of the child by both haunches with some difficulty, and drew it gently from its receptacle. The placenta, which was found in the fundus of the uterus, was removed, and, along with the living child, given to the midwife.

"It was a male, being mature, and of medium size and vigour. On the removal of its contents, the uterus immediately contracted, gentle pressure on each side promoted the discharge of a small quantity of fluid effused into the cavity of the abdomen, and, by keeping the edges of the incision together, protrusion of the intestines was prevented. The patient was very peaceable, not even uttering a syllable during the whole operation. We now proceeded without delay to apply the bandage, and the edges of the wound were brought together by Mr Buckling, with the bloody suture. Long stripes of adhesive strap were applied between the stitches, and the whole incision was covered with dry charpée and compresses, kept *in situ* by a bandage encircling the abdomen; and the patient, contrary to expectation, was conveyed in excellent spirits to bed.

"As I lived at such a distance from her, Mr Buckling was so kind as to take care daily of the bandages, and, on the 5th day after the operation, I called on her again, and found her uncommonly well; free from fever, lochia discharging from the vagina, and the secretion of milk begun in the breasts, so that she could give suck. On the eighth day, the incision, excepting a very small portion, was perfectly united, the ligatures removed, and the further cicatrization of the wound, with a simple bandage, left to nature.

"I visited her at least once a week, and found every thing doing well. On my visit on the 8th of July, she was then enga-

ged in her usual domestic occupations perfectly recovered. At a small part only of the wound, there appeared a trifling luxuriant excrescence, which was speedily removed by an escharotic, so that she was perfectly well on the 24th of July. She brought up the infant, her breasts were filled with milk, and the child quite healthy.

"At first she was ordered an antiphlogistic diet, but afterwards beef tea and wine. Internal remedies being unnecessary, were of course not employed."

Remarks of Dr Ebermarer on the foregoing case.

What Dr Kopstadt and Mr Buckling says regarding this case, agrees essentially with the foregoing report. After a careful examination, they were both convinced of the absolute necessity of performing the operation, for the possible preservation of both mother and child. The midwife perceiving, even at the commencement of labour, the malformation of the pelvis, and the impossibility of effecting delivery in the natural way, insisted on sending for an accoucheur. Dr Kopstadt, moreover, describes the person operated on as perfectly crippled from her youth, owing to disease of the bones, and from the imperfect evolution of the bones of the thorax, habitually subject to asthma. He farther observes, she neither felt sick nor faintish during the operation, although before she had repeatedly fainted from the severity of the pain. Both during and after the operation, while she expressed her grateful thanks for the assistance given her, and joy for the birth of a living and sound boy, she assured us she did not suffer so much pain during the operation as the labour pains occasioned.

The reason of the fortunate result which occurred to both mother and offspring in this case, must be sought for in the total absence of all dubious and dangerous symptoms, which, after the operation, more or less frequently arise, even when performed with the utmost skill. In the present instance, the tranquillity of mind, and resolute conduct of the patient, together with the decision of the accoucheur and assistants, greatly contributed that after the operation no doubtful symptom should occur. As soon as it was accurately ascertained by careful examination, that no other means of assistance could avail, and that the Cesarian section was the only mode of delivery, the operation was proceeded in immediately, without losing time in fruitless attempts; whereby the great advantage was gained, that the patient was not discouraged, she had more strength, and neither the external or internal parts of generation were irritated or inflamed by manual or instrumental trials. In short, from these circumstances she was much better fitted to undergo an important

operation, than after procrastination and useless torments. And to this early performance of the operation it is probable that the preservation of the child's life was indebted.

IV. ANATOMY (MORBID).

ART. XVIII.—*Case of Malformation of the Urinary and Genital Organs of a Male Child.* By EBENEZER GAIRDNER, M. D. Fellow of the Royal College of Physicians, Physician to the Royal Public Dispensary, Edinburgh, &c.

ALTHOUGH the malformation, which is the subject of the following observations, has been examined and described in individual cases by Dr Baillie *, Sir A. Cooper †, and some other anatomists of eminence, and has also been treated of in an elaborate essay by Dr Duncan *jun.* in the first volume of the Edinburgh Medical and Surgical Journal, it is still so rare as deservedly to attract attention whenever it occurs. For we find, indeed, that the industrious and accurate Morgagni makes no mention of such a deviation from the usual structure; and the erudite and ingenious Haller, in his Elementa Physiologiæ ‡, alludes to this peculiarity in a general way only, as derived from the observations of others; and when it is remarked, that even Baillie, with all the materials and observations of the Hunters before him, acknowledged himself as under no small obligations to a friend, who furnished him with the dead subject, and opportunity of examining such a formation,—it may hence be presumed, that the cases which have come under the observation of medical men, both in the living and dead state, have not been numerous. Nor am I now aware that any other preparations than those of Dr Baillie and Sir A. Cooper are to be met with in our museums.

It has been said, it is true, that such cases have frequently occurred in individual practice; but it must be remarked, that, in this country, no public notice or record of these occurrences was made until after the appearance of Ussem's case, drawn

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* Transactions of a Society for the improvement of Medical and Surgical Knowledge, vol. i. London.

† Edinburgh Medical and Surgical Journal, vol. i.

‡ Tom. vii. p. 296.

up by Professor Bonn of Amsterdam, and those by Baillie and Cooper, with the single exception of Mr Mowat of Langholm's case, recorded in the Medical Essays and Observations, vol. iii., and that of Mr Innes of Edinburgh, Med. Com. vol. ii.

I shall therefore endeavour to describe minutely the history of the case, and the appearances of the parts, with the condition of the child, as they appeared when I saw him at first, and progressively until his death, which took place when he was about four months old: I shall also note the dissection, particularly of the internal parts. The accompanying sketch (Plate III.) was taken at the age of five weeks, when the parts began to assume a healthy action.

On the 30th of April 1824, I was called on by one of my assistants to visit Norman C., two weeks old. He, with his mother, had been attended by a midwife. The parents seemed rather disposed to conceal the peculiarity and state of the infant in consequence of the unseemly, and, as they supposed, monstrous appearance of the parts that presented, though these were also in a state of disease, than to look for assistance whereby their child's life might be preserved, and his unfortunate situation alleviated.

This child, notwithstanding the deviation from the usual structure of important organs, and their local disease, in consequence of inattention, seemed at first, when I saw him, to be in such a condition generally as to promise, with due care, future life and tolerable health. In the hypogastric region, immediately below an indistinct cicatrix, which was said by the mother and midwife to have been that of the navel-string, and the point where the symphysis pubis is usually met with, there was a tumour,—a firm resisting mass,—bulging out considerably from the surface of the belly,—somewhat oval, and more than an inch in its greater axis, which lay in the transverse direction of the abdomen. This tumour, in appearance and nature peculiar, and very sensible, was of a deep-red colour, and in a state of considerable inflammation; its surface was at first covered almost entirely with a bright-yellow layer of thick mucus, or coagulated pus; and as the parts were carefully attended to, this purulent layer was observed to decline gradually, and there was formed a florid, delicate skin or surface, not very smooth. This process commenced at the edges, and proceeded slowly over the whole tumour, which seemed also to be affected by the state of the child's general health, as well as by that of the parts which at first appeared to be more painful, or peculiarly irritable, than they were afterwards. At each of the exterior and inferior angles of the tumour, there was a small, at first indistinct, point or hole, through which the urine generally trickled, and sometimes was emitted in jets to some distance; these were immediately

excited by pressing or tickling the tumour, on taking up and uncovering the child. Thus the parts were constantly kept wet with urine, which inflamed and excoriated them; but we could never discover any alteration in the form, size, or appearance of the parts, on the evacuation of several drachms of urine, which at times took place. Granulations, assuming the form of papillæ, were observed soon to sprout up from these almost imperceptible holes, to the size of small peas, but more conical and less regular in form; and it was remarked, that these papillæ, more than once afterwards, sloughed off, but they were again renewed by degrees; and, in consequence of this, the one was seldom or never of the same elevation and form as the other. At the lower point of the tumour, there was a smooth and very small surface, but of a groove, or gutter like form,—a minute portion of the urethra,—appearing as if this tube had been slit open, and its superior section raised up and applied like a skin, or covered membrane, but closely incorporated with the tumour.

A little below, an imperfect penis jutted out, which seemed merely to be the inferior section of the glans penis, with little or no corpora cavernosa, presenting a flattened bifurcated prominence, but of the usual smooth and bright red appearance, with the inferior section of the urethra exposed superiorly in its centre, and extending upwards to a point or small hole,—the posterior end or root of the divided urethra, and situated in a sulcus which was formed between the root of the penis and the tumour. The probe was once or twice put into this point or hole in the middle of the sulcus, for the purpose of sounding, but without any satisfaction, and the child seemed to suffer from the irritation which this may have occasioned; but it must be remarked, that he seldom remained quiet while the parts were under any examination. At the point of the glans-penis was the frænum, attaching a somewhat loose projection of skin, an imperfect prepuce. Under the penis was a full sized scrotum, in which was one testicle, the left; the other, we presumed, had not descended. The perinæum and anus exhibited the usual appearances.

By taking up the urine in sponges duly adapted, and a strict attention to cleanliness, also by applying cooling and astringent lotions, the parts soon acquired a healthy action and appearance; and the excitement of the system was soothed by the steady use of aperients, so that the general health of the infant was manifestly improved in the course of a few weeks. The confidence of the parents in the means recommended was thus obtained; future hopes were also inspired. After the lapse of about two months, the mucous or purulent layer had completely disappeared from the surface of the tumour; and it presented throughout a healthy aspect, being of a bright-red appearance and somewhat corrugated. The child continued to do well un-

til the 4th of August, when, as the parents stated, he was suddenly taken ill towards the evening, and died early on the following morning, before they were aware of the danger of his condition, or could obtain assistance; for they rather presumed that he had only suffered from some little accidental pressure or hurt, which the malformed parts might have sustained. Dissection, however, shewed that this was not the case, but that he had died from inflammation of the ileum and mesentery.

In the dissection of the abdomen, we made two oblique incisions, from a point, about an inch below the scrobiculus cordis, towards each os ilium, and downwards and inwards to the perineum, so that all the malformed parts might be included; but it was only after much entreaty, that we were allowed to separate and carry them off for more deliberate and minute examinations. In these I afterwards availed myself of the aid of my friends Dr Aitkin and Mr Lizars, the former of whom was so obliging as to undertake the dissections of the internal parts particularly.

We found, as has been observed by Baillie and Cooper, a separation of the recti muscles, and a considerable deficiency of bone at the symphysis pubis; the space of the former was filled up by tendon; and fat, with cellular membrane, occupied the vacancy of the symphysis pubis, and formed considerable cushions in both inguinal regions. Internally, the tumour formed a hollow or cup, was lined by the peritoneum, and contained a portion of the small intestines, so that the tumour may be strictly said to be hernial. It seemed as if it were a posterior segment of the urinary bladder, protruded and considerably thickened, the anterior part being wanting *; that it was not a collapse of the entire bladder, which some might imagine, was ascertained by our dissecting in part the cavity of the tumour. The ureters, two from the right and one from the left kidney, extended downwards as usual, and, piercing the tumour, formed the two papillæ externally; for the double ureter of the right opened into one orifice in the tumour. The right testicle was found at the groin imbedded in fat.

The vasa deferentia were traced from the testicles; first ascending somewhat, and then creeping down upon the lower part of the hollow of the tumour, where they were seen to meet, and run into the point below the tumour, which has been described as the root of the imperfect urethra. Having ascertained the destination of these tubes, it was thought unnecessary to proceed further in the dissection; for it may be inferred, from the adult cases of a similar formation already recorded, that these tubes would, at manhood, discharge their seminal contents by this point, or hole; but here the ducts and the whole apparatus

* See Baillie's case.

were so minute as to elude any examination, by dissection, that could be satisfactory, besides the risk of destroying the preparation; though it may be regretted that unavoidable delays deprived us of the opportunity of injecting the preparation, by which the more minute vessels and ducts might have been exhibited.

Although no very important physiological results may possibly be deduced from this or those similar cases already published, and however imperfect and unseemly the urinary organs here delineated may appear to be, we at least find, that this apparently vicarious apparatus can, with proper care and attention, perform the office of another much more complex, yet an essentially necessary, function of life. In short, the urinary bladder in mankind may, in truth, be said to be only an organ of convenience, while the same advantage is also taken of the urethra; but this tube, with the penis, seems rather more properly, and primarily, to belong to the generative apparatus, as being destined to render the fulfilment of their functions more certain, though probably not absolutely so. For if we find, as it has proved to be in this case, that the urine, after having been accumulated in some quantity within the pelvis of the kidneys and ureters, was made, by titillation and pressure, to flow by a *jet*, might not the seminal fluid, under sexual excitement, have been likewise in due time so discharged, even from this deficient organization, as to reach the uterus?

Explanation of the Plate,

(Which was Engraved from the Sketch that was made of the Child when reclining backwards at his Mother's breast).

A, Indistinct cicatrix, said to be the navel.
BB, Two papillæ, the orifices of the ureters.
C, The root of the imperfect urethra.
D, The glans penis.
E, The scrotum.

V. PHYSIOLOGY.

ART. XIX.—*Some General Remarks on the Eyes of different Animals.* By JOHN BARCLAY, M. D. Lecturer on Anatomy, Fellow of the Royal College of Physicians and of the Royal Society of Edinburgh, &c.

MANY animals have no organs of vision; but there are more which have at least two. These organs are called eyes, and in the human species are imbedded in osseous sockets, which are

termed orbits. The orbits, in man, are situate in the forehead, on each side of the nose, and at a distance so small, that both eyes may sometimes be directed to the same object, if placed before them in a space intermediate, and not too near. As the forms of the head, however, the forms of the neck, trunk, and extremities, are different in different genera of animals, with motions at the same time suited to their instincts, habits and circumstances, we should not be surprised to see organs of vision varying in form, position, magnitude, and number, to accomplish all the variety of purposes for which they are intended.

If two eyes, therefore, with varieties of motion and other advantages, be perfectly sufficient for the human individual in ordinary situations, even several thousands may not be more than necessary in those animals where the eyes are fixed, and where the positions cannot so readily admit of a change. To illustrate my meaning still farther, let us take the human eye as the standard, and compare it with the eyes of quadrupeds, birds, insects, and some other animals, and try to ascertain in what cases, and for what purposes, they differ in form, position and number, and also in relation to structure and capacity for motion.

In the first place, the human eye is almost completely surrounded with the bones that compose the orbit, excepting near the pupil, where the light is admitted. Within the orbit are seven muscles; one for the motions of the upper eyelid, to open it when required; and one externally spread over the eyelids, to shut them instinctively when we fall asleep. Six muscles, inserted in the eye-ball, are entirely within the orbit; four of these have their origin in the bottom of the orbit, around the sides of the *foramen opticum*, and are called straight muscles; the remaining two are termed Oblique, distinguished by the epithets Superior and Inferior. The Superior oblique rises, with the four preceding, at the side of the *foramen opticum*, and running forward, passes through a pulley, then across the eyeball, towards the temporal side of the eyeball, to be inserted into the sclerotic coat, not far from the cornea. The Inferior oblique commences at the forepart of the orbit, runs at first towards the temporal side also, and, bending a little to the nasal side, is inserted opposite to the superior oblique, to roll the eye in an opposite direction. Four of the six muscles arising from the sides of the foramen opticum, and proceeding more directly to the place of their insertion, are termed straight muscles, in contradistinction to the oblique: one of them, inserted in the upper part, is called the levator of the eye; its antagonist, on the opposite side, is named the depressor, the one inserted on the nasal side is the adductor, and the one on the temporal side the abductor. These four muscles, considering the place of their origin, would naturally draw the eyes backwards, into

the bottom of the orbit, were they not opposed by the soft substance in which they are imbedded, and by the action of the two oblique, which have a tendency to draw them in an opposite direction. At any rate, the change of place, or the locomotion of the whole eye, is not very perceptible. We can distinctly observe the pupil moving upwards and downwards, between the levator and the depressor, as it were, upon an axis, extending from the nasal to the temporal side of the orbit; and we see it moving from right to left, as it were, upon an axis; extending from above downwards, and also rolling between right and left, as it were, upon an axis, extending from the bottom of the orbit towards the cornea. From this, we are led to suppose, that these three axes pass through the eye near its central part, and that any change of position in the whole body of the eye is thus rendered unnecessary.

Observing that the pupil can point upwards and downwards, to the right and the left, without any motion of the orbit, or, while the orbit is in motion, point as steadily to the object which it is examining, as the needle to the pole,—it follows, that the eye moves not only in the orbit, but that the orbit also moves round the eye; as we may observe when looking steadily at a lighted candle, and moving the head upward and downward, to the right and the left, and yet the pupil all the while pointing steadily to its object. As these motions, however, have certain limitations; when we wish to increase the sphere of vision, we employ occasionally the muscles of the neck in moving the head upwards and downwards, or turning the face to the right and the left, by its rotatory muscles.

When the muscles of the eyes, of the head, and of the neck, are found insufficient to direct the pupil to every part in the whole circumference of the horizon, we can turn round on the heads of the femora, and see every point, behind and before, without changing the spot upon which we stand, and instinctively dilate or contract the pupils, to regulate the quantity of the rays of light that may be deemed necessary for distinct vision.

The eyes of quadrupeds, though in many respects similar to those of man, cannot be so readily directed to every quarter of the horizon. As their bodies are generally in the horizontal position, they cannot, without some time and difficulty, turn round on the heads of the femora. To supply that deficiency, their eyes are placed at a greater distance on the sides of the head, which renders their vision more extensive: they turn their heads to the right, and to the left, but cannot see distinctly behind them, without turning round, and altering somewhat the position of their body. To lessen their exertion, and facilitate the rapidity of extensive vision, the pupil of some quadrupeds, as, for in-

stance, the ox, is not circular, as in man, but oblong, and from right to left, for the admission of a greater quantity of light in these directions; just as the pupil in those animals which being habitually accustomed to ascend and descend, have the pupils oblongated from above downwards, in the direction where distinct vision is most required. In birds, the pupil is nearly circular; and though their eyes be placed on the sides of the head, yet, by the flexibility and motions of the neck, and of the head, which admits of a certain degree of motion on the atlas, they almost instantaneously take in the whole compass of the horizon, without changing the position of their body, in turning round on the heads of their femora.

In flies, and other insects, the case is different. The soft and moist parts of their bodies are generally within; their blood, or what corresponds to it, is generally cold; and, to prevent the escape of their scanty moisture, if accustomed to live in the open air, their softer and moist parts are usually enveloped in a hard covering, which admits of little transpiration. They have no eyelids, and no lacrymal fluid; and when their covering is not sufficient to prevent evaporation, they are led by instinct to seek out moist retreats under ground, or in water, or, if instinctively fond at times of the open air and warmth of the sun, to enjoy varieties of nature in search of food. We perceive that their eyes are fixed in their head, that their neck is comparatively short; and their heads, not susceptible of either various or extensive motions. To compensate for these defects, the Benevolent and Allwise Author of Nature has furnished them with large compound eyes, situate on the lateral parts of the head. Take, as a specimen, the eyes of the grey drone-fly, as described by the celebrated Dr Hooke in his Micrographia: "The greatest part of the face, nay, of the head, was nothing else but two large and protuberant bunches or prominent parts; the surface of each was all covered over or shaped into a multitude of small hemispheres, placed in a triangular order, that being the closest and most compacted, and in that order ranged over the whole surface of the eye, in very lovely rows; between each of which, as is necessary, were left long and regular trenches, the bottom of every one of which was perfectly entire, and not at all perforated or drilled through; which I most certainly was assured of, by the regularly reflected image of certain objects which I moved to and fro between the head and the light, and by examining the cornea or outward skin, after I had stript it off from the several substances that lay within it, and by looking both on the inside and against the light.

"Next, of these multitudes of hemispheres, there were observable two degrees of bigness; the half of them that were lowermost, and looked toward the ground, or their own legs, being a pretty deal smaller than the other that looked upward and side-

wise, or foreright and backward, which variety I have not found in any other small fly.

"3dly, In each of these hemispheres I have been able to discover a landscape of those things which lay before my window; one of which was a large tree, whose trunk and top I could plainly discover, as I could also the parts of my window, and my hands and fingers, if I held it between the window and the object.

"4thly, These rows were so disposed, that there was no quarter visible from the head, that there was not some of these hemispheres directed against; so that a fly may be truly said to have an eye every way, and to be really circumspect. It was farther observable, that that way where the trunk of the body did hinder the prospect backward, these protuberances were elevated, as it were, above the plane of the shoulders and back, so that the animal was able to see backwards all over his back.

"5thly, I have observed, that when any small mote, or dust, which flies up and down the air, chances to fall upon any part of these knobs, as it is sure to stick firmly to it, and not fall, though through the microscope it appears like a large stone or stick (which one would admire, especially since it is nowise probable that there is any wet or glutinous matter upon these hemispheres, but I hope I shall render the reason in another place), so the fly presently makes use of his two fore feet, with which, as with two brooms or brushes, they being all bestuck with bristles, he often sweeps and brushes off whatever hinders the prospect of any of his hemispheres; and then to free his legs from dirt, he rubs them one against another: the pointed bristles or tenters looking both one way, the rubbing of them to and fro one against another, does cleanse them, in the same manner as I have observed those that card wool to cleanse their cards, by placing their ends so as the teeth of both look the same way, and then rubbing them one against another. In the same manner do they brush and cleanse their bodies and wings, as I shall by and by shew. Other creatures have other contrivances for the cleansing and clearing of their eyes.

"6thly, The number of the pearls or hemispheres in the clusters of this fly was near 14,000, which I judged by numbering certain rows of them several ways, and casting up the whole content, accounting each cluster to contain about 7000 pearls; 3000 of which were of a size, and consequently the rows not so thick, and the 4000 I accounted to be the number of the smaller pearls next to the feet and proboscis. Other animals I observed to have yet a greater number, as the dragon-fly or adderbolt; and others to have a much less company, as an ant, &c. and several other small flies and insects.

"7thly, The order of these eyes was altogether curious and ad-

mirable, they being placed, in all kinds of flies and aërial animals, in a most curious and regular ordination of triangular rows, in which order they are ranged, the nearest together that possibly they can, and consequently leave the least pits or trenches between them. But in shrimps, crabs, lobsters, and such kinds of crustaceous water animals, I have yet observed them ranged in a quadrangular order, the rows cutting each other at right angles, which, as it admits of a less number of pearls in equal surfaces, so have these creatures a recompence, by having their eyes a little movable in their heads, which the others altogether want. So infinitely wise and provident do we find all the dispensations in Nature, that certainly Epicurus and his followers must have very little considered them, who ascribed those things to the production of chance, that will, to a more attentive considerer, appear the products of the highest wisdom and providence."

If shrimps, crawfishes, and other crustaceous water animals, have a much smaller number of hemispheres in their compound eyes, Dr Hooke observes, that this deficiency is compensated to them, by having their eyes a little movable in their heads, which the others altogether want. In the lobster and crab it is easily seen by the naked eye, that their organs of vision are not in the head, but placed on the extremity of a pedicle, which extends beyond the surface of their bodies, that they can readily discern objects in every direction. The snail has also its eyes situate at the extremity of its horns, and can see in every direction over the surface of its body. Latreille, who classifies the species of spiders according to the mode in which their eight eyes are arranged, acknowledges that their eyes have no motion in the head, and the head no motion on the trunk, the head and the thorax being connected without the interposition of a neck. Some of these animals also easily counterfeit the appearance of death, either when in danger themselves, or when they are anxious in watching their prey.

Some animals, as the mole, have retractile eyes, which they draw within the level of their integuments, when burrowing under ground.

Some animals, again, have three eyelids, birds particularly, and especially those which dive under water; this third eyelid is under the other two, and has a distinct muscle that passes round a pulley; spreads its tendinous or membranous expansion over the whole transparent portion of the eyes, commencing the expansion from the nasal canthus of the orbit, the situation of the caruncula lacrymalis. It is named the membrana nictitans, is pretty general among animals, but more perfect in some than in others. It performs an obvious and important function to the eyes of birds; it is diaphanous, admits a quan-

tity of the rays of light, allows them to see partly under water, and protects the eye at the same time from injury.

Fishes that conceal themselves in the mud, or harbour among thick sea-weeds, have generally a covering to protect their eyes. Scaly fishes, such as the salmon and herring, have no eyebrows, eyelids, or lacrymal gland. Those aquatic animals which are warmblooded, viviparous, and covered with hair, which occasionally ascend to the surface to breathe, or sometimes to continue a while on the land, have eyelids. In scaly fishes the integuments are continued over the eyes, but drop their scales, when opposite to the transparent part, and become as smooth and transparent as the lucid cornea in man, &c. The eyes of the rayfish or skate are not globular, but resemble what anatomists might call semilunar, in the form of a crescent. This fish has besides a dark curtain, similar in colour to the pigmentum nigrum of the choroid coat, which it can spread at pleasure over the transparent portion of the eye, either to moderate the quantity of light, or exclude it entirely. The cuttlefish, or *sepia loligo*, which has two large eyes, has two crystalline lenses in each: one anterior, which is the segment of a much smaller sphere, rests upon the larger, or the one behind, where they are somewhat flattened, with a transparent membrane interposed,—a membrane which extends from the lenses to the coats of the eye, and contributes to give them a greater degree of steadiness. See farther the observations of Tuberville Needham on the Calmar or Cuttlefish, and the appendix to Swammerdam's Book of Nature, in which he describes the anatomy of the sea sepia or cuttlefish, accompanied with plates, and dedicated to Francis Redi, physician to the grand duke of Tuscany,—a man not more distinguished by his uncommon learning, than by his modesty and extent of research. The figures which Swammerdam has given of this animal, of the form and structure, particularly of its double lens and its optic nerves, with their ganglia and numerous ramifications spread upon the eye, will entitle it, from its singularity, to rank among the great miracles of nature.

But I shall not enter into detail, as no general and uniform description can be applicable to the eyes of all the diversified genera of animals. Suffice it to say, that they are organs of vision, differently modified, according to all varieties of structure, instinct, habit, situation and capacity for motion; and that, however different their degrees of vision may be, and however different the form, number and position of the organs by which they receive it, they, to all appearance, seem perfectly happy and contented with their lot; and that the Omnipotent and Omniscient Creator, after seeing every thing that he had made, and the whole so admirably suited to the purposes which he intended, declared the whole to be "very good."

VI. BOTANY.

ART. XX.—*Memorial of the Botanical Labours of André Michaux.* Communicated by F. BOOTT, M. D. to the Editors of the Edinburgh Journal of Medical Science.

GENTLEMEN,

I SEND, for your Journal, a highly interesting Memoir of André Michaux, the author of the "Flore Boreale Americane," and the "Histoire des Chênes de l'Amerique Septentrionale." The original was given to me in Paris, in February 1819, by his son, the excellent author of the North American Sylva, who accompanied the present memoir with the following note:

"The accompanying memoir, written and signed by my father, which I give to Mons. F. Boott, was written in the month Ventose, in the fifth year of the French Republic, an era which, I believe, corresponds to the month of February 1797. This memoir, in which my father rapidly retraces his scientific labours, was drawn up to be presented to the Minister of the Interior, who was at that time Mons. Benereck *, since dead at Cape Francoise. Every thing relating to the arts and sciences was, and still is, in the gift of that office. "F. ANDRE' MICHAUX.

"PARIS, 15*th Feb.* 1819."

The original memoir, and a list of plants, observed by G. Michaux in the Bahama Islands, I have deposited in the library of my excellent and munificent friend Dr Hooker, the Professor of Botany in the University of Glasgow. I am yours, &c.

F. BOOTT.

24, GOWER STREET, BEDFORD SQUARE, LONDON,
Nov. 10. 1825.

Citizen Minister,

I was bred a husbandman. In my youth I followed this profession, uniting the theory to the practice of rural economy. The garden of Trianon was opened to me in 1777, in which I studied plants according to the method of the celebrated Bernard Jussieu. Experiments, and the success I met with in the culture of foreign trees, determined me from that time to make botany subservient to the utility of my country. I formed the project of travelling, and of surveying those foreign

* I have written the name of the minister exactly as in the original manuscript.

countries, situated under the same latitudes as France, with the view of procuring their natural productions. A French resident arrived at Paris from Bagdad in 1781, who furnished me with data respecting Persia, and I determined on visiting that country. In less than four years I ran over Syria, Babylonia, and Persia, through its whole extent from the Sea of Judea, to the Caspian Sea. In 1785 I brought back rare collections, of several kinds, antiquities, minerals, seeds, and dried plants, which were examined with interest by the French and foreign sçavans at that time in Paris.

I ascertained, by individual observation, that the countries, situated between the 35th and 45th degrees of latitude, are the native countries of the fruit-trees, the legumes, the pot-herbs, the fodder, and ornamental plants, cultivated in Europe. Indeed I recognized, in the forests which surround the Caspian sea, the walnut, the vine, and the cherry *; in the natural meadows, a native wheat; and the fodders called artificial †; in the mountains, I gathered the legumes and pot-herbs ‡, and I then saw the lilies and tulips of our gardens abandoned to nature §.

My object was to travel as far as China. I had studied the languages of the East, and I believed the possibility of entering, as a native of that clime, with the caravans into that vast empire, interdicted to Europeans. But as I had undertaken this first expedition, without any assistance from government, I decided on returning to France to prove, by its success, how much there was to hope from a second, if I was supported.

The brother of the late King promised me the necessary aid; but the old government, desirous that the forest trees of North America should be naturalized in France, proposed to me to travel in that part of the world. I was obliged to yield to their wishes; and, three months after my arrival from Asia, I embarked for America.

My instructions were to travel through the United States, for the purpose of becoming acquainted with their vegetable productions; to send home all the species of trees, plants, and seeds, and to establish a garden at New York, as a deposit for those which could not be immediately shipped. I arrived at New York at the end of October 1785. The shipments I made, in the course of that winter, consisted of a dozen packages, containing 80 species of seeds, and more than 4,800 plants, trees, &c. I bought, in the neighbourhood of that city, some land

* Juglans regia, Vitis vinifera, Cerasus domestica.

† Triticum spelta, Medicago sativa, Hedysarum clypeato accedens, Hedysarum coronarium, &c. &c.

‡ Cicer arietinum, Allium Cepa.

§ Lilium candidum, Tulipa Gesneriana, T. multiflora, &c.

for a garden, arranged with a gardener respecting its cultivation, and afterwards travelled over New Jersey, Pennsylvania, and Maryland.

At the end of August 1786 I embarked for Carolina. I immediately was impressed with the necessity of obtaining, in the neighbourhood of Charleston, a piece of ground proper for the establishment of a nursery. This city, situate under a mean temperature, was a concentric point from which I might travel in various directions, and bring back not only the productions of the Carolinas and Missouri, but those of Florida and the Bahama islands. Its proximity to the highest mountains, placed, at my disposal, the trees and plants of the northern latitudes. Its commercial intercourse, also, was more extensive with France, and would enable me to make repeated shipments of the rarest productions, as I multiplied them by cultivation.

A consideration of all these advantages determined me to establish here a depot for my collections, and to make it my principal residence. A small garden, with two rooms and a magazine for my seeds, had cost me in Charleston 80 guineas rent. At the distance of 3 leagues from the city, I met with a piece of ground of 123 acres and a house, to be sold for 123 guineas. I purchased it, and formed a nursery; my seeds grew, and produced young plants of the fairest promise; my trees were packed up in the most careful manner, so as to retain their freshness during the voyage; and I succeeded in putting from 3000 to 4000 plants in a box that did not weigh over 30 pounds. All my letters, acknowledging the receipt of these cases, were full of the most satisfactory details with respect to the healthy condition of the plants. My correspondence with the director of the nurseries (ci-devant Abbé Nolin) was most active; and I communicated to him all my observations upon the nature of the soil, the temperature, and the means of cultivating the plants with success.

The director-general (ci-devant Comte D'Angiviller) was so satisfied with my success, that he offered me the land I had purchased. But I was ambitious of the right of property over the whole extent of North America, that I might use it for the advantage of my country: I considered it as a vast harvest field; and wishing to be free of all the embarrassment of individual property, I could not take advantage of his offers.

From 1785 to 1790, I travelled over the thirteen United States, Florida, and the Bahama Islands. I visited the seacoasts, followed the chain of the Alleghany Mountains through their whole extent; and visited the Creek, Cherokee, and Catamba tribes of Indians. During this interval I sent home, and there were received in France, more than 60,000 trees,

and more than 90 packages of all kinds of seeds, gathered under different latitudes.

The garden of Carolina was very flourishing, when I received, in 1791, an order from the intendant of the civil list to dispose of it. As this order was not officially communicated to me, I eluded it. I could not bring myself to the resolution of seeing this establishment pass into the hands of strangers, and of abandoning the rare collections which I had made; and which were the more dear to me, as the acquisition of them had cost me so much fatigue, and exposed me to so many dangers. I saw that my country would be deprived of the fruit of the expences which had been incurred for several years; and I determined, for the purpose of preserving it, to make myself lessee of the establishment. After I had observed, therefore, all the formalities prescribed by law, the public sale took place in March 1792.

From this period, the old government ceased to be charged with the expences of the cultivation. I reduced them to 2000 francs from 3000, which had been the annual cost; and as my own fortune did not admit of bearing it alone, I proposed to the agricultural society of Charleston to share it with me, on the following conditions: I placed at the disposal of the society, all the fruit-trees of Europe and the old Continent, which I had naturalized in the garden, and I reserved, for myself, the property in all those of North America, which I destined for, and for which I considered myself accountable to, my country. To this proposition, I added a memoir upon the advantages of naturalizing several exotic trees, chosen from those of China and the South Sea islands, which vegetated imperfectly in the hothouses of the botanic gardens of Europe. The example of those which I had already naturalized in Carolina, gave force to my observations. My proposition was accepted. I became a member of their society, and I consecrated the resources, which remained to me, to the continuation of my travels.

Hitherto I had not followed, in my journeys, that regular plan which I wished to observe, for a knowledge of the topography of plants; that is to say, by tracing them from the commencement of their existence toward the north, to the limits which nature had fixed to them towards the south; and to determine, within this space, those places where the same species constantly exist, those where they disappear and are replaced by others, in consequence of the diversity of soil, situation, and exposure. This species of observation not having been practised, I determined to make it the principal object of a journey in setting out for the north.

I was about to carry this project into execution, when I received, from the intendant of the civil list, the announcement

that my mission was at an end. I refused the offers of the state of Carolina, which proposed that I should fix myself in America; and I set out, without delay, for those countries bordering upon the arctic pole.

I embarked at Charleston, and in ten days arrived at New York. From this city to Quebec, a distance of 200 leagues by land, my journey was one continual herbarization. At Quebec I procured all the necessary information respecting the countries situate between Canada and Hudson's Bay, and, accompanied by three savages as guides, and a dog, I traversed those dismal countries, where Nature exhibits nothing but lakes, inaccessible rocks, and cascades. The vegetation, except on the banks of streams, presented only fir-trees of a sombre verdure, and pines, which, in their state of fructification, did not attain more than five feet of altitude. The surface of the soil, constantly wet with dew, even in the finest days of summer, produced nothing but mosses. The rocks, covered with immense, black corrugated lichens, were more frightful than if seen in all their nakedness. I saw no other quadrupeds than bears, castors, and some deer, happy by their removal from man, in finding at peace, in those deserts, their food from the whortle-berries, birches, and lichens. The spaces between the mountains or rocks were covered entirely with lakes, inhabited by swans, who reared their young in the most perfect security. After having surmounted difficulties unknown even to the natives of Canada, we arrived at the lake Mistissings. We followed the course of the rivers which flow into Hudson's Bay, and, on the 7th of September, four months and eighteen days after my departure from Charleston, and two months after leaving Quebec, having crossed twenty-two lakes, and toiled at eighty-three carrying places, we found ourselves at the junction of two rivers, whose mouth, at Hudson's Bay, was only three days journey distant from us. I was extremely desirous of extending my researches to the sea, but the rains, the snow, and the boisterous winds having increased, my guides represented to me, that the country would soon be covered with snow, and our return, if delayed, rendered dangerous, and perhaps impracticable. I yielded to these representations, and we retraced our steps. As it was not my intention to revisit these frightful regions, I verified, on my return, all the observations I had made upon the topography of the trees and plants. I collected all the rarities of the country, birds, plants, and seeds; and, on my return to New-York, I made two collections, which I sent to France. One of them was plundered by the rebels of La Vendée; the other arrived safely, and several of the objects it contained actually exist in the garden of plants, in that of citizen Cels, and in several others.

My funds had at this time considerably diminished; and as I was anxious of continuing my travels, to complete the plan I had formed, I appealed to several members of the philosophical society of Philadelphia, and communicated to them my wish of travelling over land to the Southern Ocean. My project was favourably received. I accepted their instructions, and pledged myself to their execution, on condition, that the observations, and the collections of natural history, which resulted from the journey, should be at my own disposal; while all the geographical knowledge I obtained should be laid before the society. It was agreed that a subscription for 5000 dollars should be opened, a fifth part of which I was to receive in advance for the expences of the journey.

The repugnance I felt at receiving assistance from strangers, made me delay in employing the first sums that were subscribed. I wished to be alone indebted to my country for the means of exercising my zeal; and things remained in this state when I received intelligence of the arrival of the minister Génet at Philadelphia. I immediately represented to the subscribers, that the uncertainty of success would not permit me to accept the sum proposed in advance, but that I should be amply indemnified by their honourable testimonies given to me on my return, if I should have the good fortune to succeed. I saw the minister Génet at Philadelphia in April 1793. On the information which I communicated to him respecting Canada and the French Illinois territory, he entrusted me with a secret mission. I was sent to the Missisippi, where I visited several of the Indian nations, with whom I was charged to treat, for the purpose of engaging them in the interests of France. I returned to Philadelphia in January 1794, and rendered an account of my mission to Mons. Génet; and since my return to Paris, I have communicated to the minister of marine all the information in my power.

During the second, third, and fourth years of the Republic, (1794–5–6 old style), I visited the countries situate to the west of the United States,—*la belle rivière* (the Missisippi) through its whole extent,—the mouth of the Missouri,—the entire country of the Illinois,—and several Indian nations of this district. I brought home the collections, and had the good fortune to save them from the shipwreck which I suffered on my return to France. The seeds have been deposited at the garden of plants, in that of Citizen Cels, &c. and already promise success.

To recapitulate. During eleven years, I have travelled through North America, from north to south, through its whole extent, comprising an extent of 23° of latitude, or 575 leagues, as the crow flies. From east to west I have travelled 400 leagues, from Philadelphia to the mouth of the Missouri.

I have, besides, made more than twenty other journeys, either along the sea coast, or in following the course of most of the great rivers of the United States. I have visited also part of the Bahama Islands; and in these journeys, besides the rarities in natural history, I have kept an exact account of the sum of the vegetable productions peculiar to each country. I have remarked, that the country situate to the west of the Missisippi, is, of all the extent of North America, the most fertile in natural productions in the three kingdoms of nature. I had formed the intention of again travelling over this part of the country with care; but, before continuing my travels, and exposing myself to new dangers, I deemed it most prudent to bring my collections to France, that I might publish the description of them, and secure to my country the honour and advantage of my discoveries.

To accomplish this end, it remains for me, Citizen Minister, to receive your orders; 1*st*, respecting the best use to make of my collections, and the place where they should be deposited; 2*d*, respecting the mode of obtaining the means to render them public by the press. The commissioners have already been named by the national institute for a report upon them. The citizens Lacepède and Dolomieu take cognisance of those objects which belong to their province; but the citizens Jussieu and Cels, whose inquiry is into those objects of detail which relate to the botanical and economical part, cannot make their report for some weeks.

There is another object, Citizen Minister, to which I beg you to fix your attention; viz. the responsibility with which I have been charged. I have received sums of money for the cost of cultivation and travelling, of which I ought to render an account. I was six years without receiving any allowance. I have placed all the expences of the establishment in Carolina against the sums which I have received since the revolution. Nothing has yet been determined on respecting my claims upon this account. They are detailed in an accompanying memoir, which has been seen, and certified, upon the spot, by the minister and consuls.

I wait your order, citizen minister; for I am desirous of returning as speedily as possible to North America, and of finishing the task I have imposed upon myself, of exploring it thoroughly,—of publishing its Flora,—and of giving more extended information, than has hitherto been acquired, upon the zoology and mineralogy of this vast country. I presume to hope, that, by the habits of travelling which I have acquired, and by the knowledge I have obtained of its Indian nations, I shall escape from danger, and shall prove successful.

Greeting, and respect,

ANDRE' MICHAUX.

PART II.

REVIEWS.

I. PRACTICE OF MEDICINE.

ART. XXI.—*On the Effects and Properties of Cold, with a Sketch, Historical and Medical, of the Russian Compaign.* Translated from the French of M. BEAUPRE', M. D., by J. C. CLENDINNING, M. D. Edinburgh, 1826.

IT is a curious fact, that the page of the historian or traveller has hitherto revealed to us no age or tribe of mankind so rude and ignorant, as to be unacquainted with the effects of cold, both in exciting and subduing the diseases of the human frame; and yet, that the most accomplished physicians, of the most civilized countries, are, both in respect to its influence and exhibition, more inconsistent, contradictory and unsettled in their views; more lax in their reasonings; and, in short, farther beneath the level of the science of their own age, and the facility afforded to improvement by the immense number of facts on record, in all that regards the effects of cold,—than on any other question, of equal moment, within the range of medical science. There is no doubt that some share of this anomaly may be fairly attributed to the general uncertainty of medical theory, with respect to the origin of diseases, or their proximate cause, as it has been long termed. Thus, were the reader to burn his finger, I suppose he would find it hard at this moment to determine, either from theoretical or practical views, whether the inflammation, which would certainly supervene, was to be combated by the remedial aid of *cold*, or of *heat*. Æsop's satyr shunned the society of the man who blew hot and cold with the same breath; but, were our patients to carry this notion into physic, we are afraid that a great many skilful prac-

titioners would be forthwith and totally discarded; and the whole art itself, as far as regards the treatment of the important class of *Phlegmasiæ*, held in much suspicion. Ask Dr Kentish, and his numerous school, What is to be done? "Apply stimulants," would surely be the answer, "which will cause the little dilated and overloaded vessels to contract, and thereby restore them to their original tone. And what stimulus is better than hot water, or oil of turpentine?" Another practitioner, equally acute, informs us, that *cold* constringes the vessels most effectually; or, if he happen to be of the sect which holds that they are already constricted, when in a state of inflammation, he will pronounce, that cold exerts a sedative effect, and thereby lessens the general irritation in the inflamed part.

The same or similar difficulties obtain, when we bring physicians to the act of prescribing heat or cold in diseases of the nervous system; and so very accommodating are their theories in this respect, that we have lately seen hot and cold water applied at the same instant in mania, and a reward demanded from the imperial parliament for the discovery of this signal invention.

Still the deficiency of medical theory will not account for the collective mass of ambiguity and paralogism we daily observe among practitioners with respect to cold; yet its relations to inanimate bodies are well understood, and duly appreciated; and we have abundance of materials for arriving at nearly the same degree of precise knowledge, concerning its operation on living bodies. The truth is, that cold affects too many important functions at once, the heart, the nervous influence, the cutaneous perspiration, the locomotive powers, the sensibility; and the physician who has not the opportunity of learning their order and degree of depression under its influence, their relative powers of resuscitation, from the agency of its antagonist, heat, can never be in a condition to judge of the relative share of each in the production of that series of phenomena which may be brought under his consideration.

Hitherto this information has been scattered about among a great many authors, both therapeutic, and others, the titles of whose works could afford no clue by which the medical inquirer might be led to them for information respecting cold, or its agency in health and disease. The aphorisms and other practical works of Hippocrates, abound in observations on that agency. His follower and annotator, Galen, so far improved on them, as to lay down very distinct rules for the use of the cold affusion in fever; a practice which was afterwards judiciously extended by Dr Currie of Liverpool to almost all diseases of the pyrexial class. Still, the only book in our language that could hitherto be referred to with convenience, was that of Dr Stock

of Bristol, on Cold, a respectable work, but now twenty years old, and besides the want of later observations, rather limited in its plan, though rich in original matter and faithful observation.

It is with pleasure, therefore, that we turn to a new work on the subject, by a physician who certainly has enjoyed abundant opportunities for personal and local observation, and in the book of Dr M. Beaupré, we find much of this requisite information brought home in so intelligible a style, as cannot fail to please while it instructs. The author had possessed "manifold opportunities of observing the action and properties of cold; and though, while occupied in professional attendance on soldiers, in climates of very various temperatures, he had, in diverse circumstances, made use of cold applications with success, he confesses, that still, for want of analytical examination, he had not always been able to explain exactly their physical effects, or manner of acting upon the animal economy. The Russian campaign, the sight of the sufferings originating from cold, of which we have unhappily been witness,—what I have myself endured,—what I have read, in short, have induced me to reduce to writing various reflections on this agent, which exercises such great influence over man in health and disease, and to add to them a number of facts from my own observation, or which were scattered here and there, and became necessary as a basis for reasoning, and a source for useful reference."

This extract from the author's preface affords a distinct idea of his design; and the following is the plan he has pursued in its execution:

		Pages.
"Chap. I.	General considerations upon caloric and heat,	12
II.	Do. do. upon cold, -	22
III.	Effects of cold upon the animal economy, -	60
IV.	Historical and medical view of the Russian Campaign, - - - -	34
V.	Asphyxia, gangrene, and death from cold,	26
VI.	Application of cold to the conservation of health,	7
VII.	Therapeutical effects of cold, - -	25
VIII.	Refrigerants, - - - -	7
IX.	Application of cold to disease, - -	123
X.	Translator's appendix, replete with recondite and valuable information, - -	50

The practical part, then, or the application of cold to the treatment of disease, occupies between one-half and one-third of Dr Beaupré's work; but the whole, whether theoretical or practical, is executed in a manner highly creditable to the author; and the British public is indebted to Dr Clendinning for having put within their reach, at a rate so accessible, a code of the relations of cold to the human economy. The following are a few extracts, taken almost at random from the work.

" CHAPTER III.

" *Of the Effects of Cold on the Animal Economy.*

" All organic systems feel less or more the salutary or injurious effects of cold. The whole constitution is equally subject to the influence of this physical cause, whose mode of action on the animal economy has been hitherto too imperfectly ascertained to allow of dogmatical decision respecting its properties; it does not, however, appear difficult to perceive, that we have generalized too much, or not inquired with adequate minuteness into the effect of cold. If Brown, and his disciples, had taken the trouble of analyzing, in every point, its action on man, they would have been induced to acknowledge, that the debilitating effects which they attribute to it above all, occur only when it is excessive in degree or duration, and, moreover, aided by concurrent causes. It is from not having divided cold into moderate, rigorous, and immoderate,—from not having considered man in repose and in motion,—from having regarded cold as an agent isolated from reaction, and having neglected to ascertain the share due to the different states of the body respectively, to that condition of the powers, which always supposes energy or debility,—the possibility or impossibility of reaction,—that the Scotch physician has, as we think, pronounced a judgment too exclusive. Facts, rather than reasoning, will perhaps help us to render opinions respecting the tonic or debilitating effects of cold, less discordant. This point of doctrine interests the practitioner as much, or even more, than the physiologist.

" Atmospheric cold is moderate, from 44° to 22°; it becomes rigorous when it exceeds that term; if it decends below 9°, it is then reputed excessive or immoderate. Cold cannot, under the temperate zone, be considered moderate, when exceeding by a third its average annual degree; a healthy man, however, resists that unusually intense temperature. It is otherwise in countries placed under the icy zone; there, ever reigns an extreme cold, to whose energy the vital power is disproportioned. There the inhabitant drags on a frail and pitiful existence; he is forced to redouble his precautions to avoid surprise and exposure to destruction; he appears timid and fearful, in constant combat for life against an element ever on the offensive. There is, in short, a limit of latitude, beyond which it is impossible for man to live."—P. 33.

We admire the following description of the effects of cold:

" Before examining the particular influence of cold on the different systems of the animal economy, we shall declare its general effects; we shall analyze it, the better to discover, if that be possible, its true mode of acting on the living fibre. All parts of the body, the face, hands, and female neck excepted, are defended by clothing from the impression of cold; those who are continually exposed to it, prove, on that account, insensible to it. Let us, then, suppose a healthy, vigorous man, exposed naked to the air, the thermometer standing at 32°; the effects of cold on the body will vary according as its action is momentary or prolonged: this gives occasion to distinguish two times.

" During the first, the person in question presents the following phenomena : He is seized with a general feeling of horripilation, and experiences a pain acute and distressing ; the true skin, or chorion, contracts by a sort of concentric movement, owing to which it thickens ; the skin becomes dry and wrinkled, and forms what is vulgarly called the goose skin (cutis anserina) ; the hairs erect themselves in their bulbs ; the constriction of the skin cramps and retards the circulation in the capillary vessels ; the surface of the body grows pale ; the superficial veins disappear ; heat and sensibility diminish ; the whole body falls into a kind of spasmodic stiffness ; the pulse becomes concentrated ; this incipient disturbance of all the functions is evidently the effect of the oppression of the powers, and of their morbid concentration. If, at this time, the subject withdraw from the action of the cold, if he cover himself promptly, reaction declares itself, the skin becomes red, and all the organic movements are reestablished with more than their former force and energy. On the contrary, if the individual remain exposed to the action of the air, his oppressed powers are unable to react ; their annihilation is imminent, and death arrives in a way we shall describe in treating of asphyxia from cold.

" A person plunged in a cold bath of 54°, presents analogous effects. Some peculiar symptoms, however, deserve mentioning, such as the chattering of the teeth, hurried and irregular respiration, a voice weak and tremulous, distressing anxiety, feeling of weight in the chest, sensation of freezing extending to the bones, desire of making urine. If the subject come out of the bath after three or four minutes, if he wipe and dress himself quickly, all symptoms gradually vanish ; the skin reddens ; a feeling of general heat and wellbeing supervenes ; the pulse increases in frequency and strength. If, on the contrary, the subject prolong his stay in the bath, particularly if seated and in repose, a new shivering comes on, and he experiences the following symptoms : progressive refrigeration of the whole body, weight of head, numbness or pain in the limbs, infrequency and smallness of pulse, stupor, somnolence. If not withdrawn, his death will certainly ensue."—P. 36.

The following anecdote may convey a useful hint to a certain class of practitioners :

" An Italian lady, somewhat aged and damaged by coquetry, begged of me once to point out some way of hardening her breasts. Being disposed to indulge her foolish vanity, I advised her to apply to them some pounded ice, between cloths, for a moment, three or four times a day. I was indeed far from thinking any one would have courage to apply such a remedy ; but I learned shortly after from the maid, that the lady of the house was well satisfied with it, and recurred to it from time to time."—P. 43.

The following remark sufficiently contradicts the theoretical conclusions of Montesquieu, which still obtain more credence than they deserve, even amongst physicians. M. Beaupre is supported on this occasion by the concurrent testimony of Dr Johnson, in his admirable treatise on tropical climates.

" *On Generation.*

" Man differing from many animals, enjoys the privilege of reproducing his species without interruption at all seasons, in every climate. The icy cold of polar regions does not, in him, suspend the desire of propagation. Montesquieu*, whose ideas respecting the influence of climates are not always exact, has erred, I think, in saying, that, in northern countries, physical love manifested itself but with difficulty. It appears, on the contrary, so much more energetic there, as the prevailing robustness of body, and sanguineous temperament favour it, and as the constitution is not there early enervated, as in hot climates, by premature abuse of pleasure, and by the excesses of the voluptuary and the libertine. Though the passion of love be less lively and unruly than in the south, its effects in respect to population are not less positive. In Sweden, it is not rare to see women have twenty or thirty children. In traversing Russia, we find marriages followed by a numerous progeny ; we are surprised at the great number of children in the palaces of the rich, as well as under the humble roof of the poor. In that vast empire, the population must surely increase, unless prevented by a great multiplicity of depopulating causes."—P. 88.

The following facts are interesting to the natural historian :

" The Russians regard the winter of 1812 as one of the most rigorous of which they have any record ; it was intensely felt through all Russia, even the most southern parts. The Tartars of the Crimea gave me as a proof, that the great and little bustard, which at that season quit the plain, and come annually for protection from the cold into the southern part of the peninsula, towards the coasts, remained benumbed on the snow, and that they caught a great quantity of them. This explanation removed my surprise to see, in traversing the low hills, in the spring of 1813, the ground covered in some places with the remains of these birds entire."—P. 105.

" Misfortune usually unites men ; the equality of a sad condition, the feeling of the same punishments and sufferings, leads them mutually to console each other, and even to assist each other in the smallest matters. But how strange were the effects in us of general discontent, of the continual sensation of cold, of physical wants not satisfied, of well founded fears of each one for his own fate, of the peculiar moral affections of each individual, and of the frightful idea of being exposed to perish of cold and famine! It seemed as if, in our retreat, misfortune had soured our minds and hardened our hearts. We were insensible, selfish, avaricious ; and M. Labaume's remarks are very true †."—P. 116.

The best security against a freezing fall of snow, is to lie down and allow it to form itself over the body.

" In Siberia, travellers are sometimes surprised by hurricanes, which endanger their lives. They know then no better means of

* Esp. des Loix, b. xiv. c. 2. † Relation Historique, &c. Paris, p. 382.

escape from danger than lying down; but, in order that the accumulating snow may not suffocate them, they get up every quarter of an hour to shake it off *. I knew a Russian officer who made a long stay in that province; he has assured me, that persons surprised by the fury of a hurricane, accompanied with snow, remained lying under that substance during the time the storm lasted, and were thus safer and less liable to perish from cold."—P. 128.

Dr Beaupré attributes seven original therapeutic qualities to cold:

"Cold rarely acts by one effect, but all its effects are connected and confounded together. It is from the predominance of one, or from simultaneous action of several, that the essential and characteristic differences of each property result. In any given case, the action of cold by one property rather than another, is determined by physical circumstances, or organic pathological modifications." —P. 172.

"An attentive and elaborate analysis has led me to distinguish seven; viz. 1. A refrigerating property; 2. An exciting; 3. A sedative; 4. An astringent; 5. A tonic; 6. A debilitating; and, 7. A perturbing property."—P. 173.

In the therapeutic part, of course, the author draws largely on our countrymen, particularly Dr Currie, in all that regards the cold immersion, affusion, and so forth; and he remarks,

"The facts lying scattered through, and lost, as it were, in practical authors, should, I am persuaded, long since have suggested the idea of applying cold in ague; and it is to their perusal probably that English physicians owe their being the first to have applied it in that sort of fever."

Alas! M. Beaupré, the English have been before hand with you in matters of much more vital import than this; and your little volume would suffer a frightful reduction, were all their anticipations fairly withdrawn from it. Filching from old authors is not *their* cardinal sin alone; and as to the fact in question, the first time we ever heard of the application of cold affusion in intermittent fever, was by a clever army surgeon, who, though an excellent scholar, and an accomplished practitioner, never we are sure read two old medical authors, or one line of your *Anc. Journ. de Med.* in his life.

With these extracts we part with M. Beaupré, and the following is not an unfavourable specimen of the manner and matter of the notes:

"The following are the general results of some experiments I made on the bath:

"The first organs of the modification of which we become sensible, are the nerves. The change they undergo does not appear to be suspension to a greater or less degree of their functions, as

* Voyage en Siberie par Krachenikow.

happens in the case of the capillaries. On the contrary, they make their existence much more sensible, and help to attract much more of the attention of the subject to the phenomena of which they are the physical conditions; the liveliness of the sensations must of course, in a great part, be attributed to the novelty of the impressions. The body may be for a long time exposed to cold, and if exercise or stimulants be not employed, the activity of the circulating system may be very greatly reduced before the *consociative* or *conductive* powers of the nerves disappear, or be even materially diminished in torpefaction. After an hour's exposure to cold,—the first fifteen minutes to an atmosphere of 60° *en chemise,* the next fifteen minutes to the same atmosphere, being wrapped up in a wet cloth, the remaining thirty minutes being immersed in a bath at 57°, I found tactual sensibility little affected; the cerebral functions entire; the susceptibility in the skin, of pain from friction, augmented; the so called motive power, only of the nerves, somewhat diminished, as I infer from the shiverings, &c. concerning which some observations will perhaps be offered hereafter."

On the whole, we scruple not to recommend this little work to all who would study the relations of cold to the human frame: but we are far from being so much satisfied with it, as to think that a better might not have been written. The author is too prating, too lively, too frenchified; heeds neither the sources of his information nor the objections that may lie against them; and is, or seems to be, altogether indifferent to the value of quotation. His translator, too, might here and there have supplied this deficiency; but we believe it may be the first work of any magnitude which he has put to press, and we know, from present experience, how much allowance, in that predicament, is required from the public. It is well to keep in mind the remark of the cynic Johnson,—"Here is a man six feet high, and you quarrel with him because he is not seven."

ART. XXII.—*Elements of the Theory and Practice of Physic.* By GEORGE GREGORY, M. D., Licentiate of the Royal College of Physicians in London, Physician to the Smallpox and Vaccination Hospital at St Pancras, and to St George's and St James' Dispensary, &c. &c. London, 8vo. pp. 679.

IT is our intention, in our quarterly *avatar*, to pay some attention to those new publications, of which it is the humble but laudable object to facilitate medical instruction, among the younger members of the profession. On the views which *they* open up, and the practical maxims which *they* inculcate, we run no hazard in asserting, that the chance of recovery of a vast majority of the future sick will depend. The tree, it is said, re-

tains the bend of the original twig; and, moreover, till the persons legislating for our boards of examinators over the empire direct their edicts somewhat more effectively towards ascertaining the actual attainments, than the age, apprenticehood, expenditure, and comfortable externals of the aspirants to legal qualification in the medical profession, the cut and dry information afforded by such commodious manuals, will always, we are afraid, entitle them to a high place in the student's library. Whenever a system of rigid inflexible refusal, in all ambiguous questions of competency, shall be substituted in these courts, for a showy display of trumpery card and foolscap certificates, which "are of no use to any body but the owner," the student will find the longest book the best one,—and not till then.

Of the works of the present description, relating to the practice of physic, Cullen's First Lines is, beyond all controversy, still the best: it is the most ingenious, the most practical, with all its theory; and, above all, the most "germane" to the matter. It is, however, now, in many points antiquated, in others deficient; but we think, if Dr Reid, who has already made some advances towards what we mean, would *add every thing* to it which has been discovered since the time of its publication, in the *manner* and text of his author, there would be little room for many of the proposed substitutes which have naturally made their appearance, since these deficiencies became observable.

Next to Cullen's, in point of utility, is the popular work of Dr Thomas, at which we would not advise any of the fastidious admirers of fine writing to turn up their nose, till they know where to get a more handy collection of the opinions of the day, on most practical subjects. If they talk of the ponderous elements of the erudite Dr John Mason Good, we will confess, that we consult them with advantage; but what honest Briton, except the author, and the reviser at the press, can lay his hand on his heart, and say he has read them through? It is an indifferently good shelf book, and as such may be recommended; but its language and nosological nomenclature, and its everlasting Arabic, must undergo a complete regeneration, we were going to say translation, before it can facilitate the studies of the tiro.

Dr Hooper's Physicians' Vade Mecum affords a useful, and therefore popular, though rather obsolescent syllabus of modern practice.

Some other attempts we have seen, which have in general a degree of merit not inconsiderable, but we here speak of the works with which Dr Gregory's may in some measure be compared.

The latter is of a size which precludes much minute matter or elaborate discussion; and the author's merits are therefore

confined to making the best of his space and materials. We hope, at least, that this is his reason for the very cursory way in which many important subjects are dismissed; for, though we think well of his book, and design to present the reader with a few extracts, to enable him, as the phrase is, to judge for himself, we should have preferred a more rigid adhesion to his main object,—the composition of a manual of the practice of physic. Few readers will think of resorting to his work for information on mere pathology; a vast mass of insulated facts, which no art can condense, and which we can assure the Doctor (see Pref. vii.) had a most voluminous "mode of existence," long before the days of Morgagni; as Bonetus, Schenkius, and many others, bear silent witness on our ground shelves. On the other hand, we find no fault with the plan or arrangement of the 102 formulæ for prescription, which he has subjoined at the end. They are both elegant and accurate; and we like to see a man having courage to put that in print, for the benefit of his pupils, which he is every day committing to writing for his patients; alike regardless of the sneers of the clinical critic, and the everlasting revolution of medical taste, which must, to a certainty, render his labours of this kind obsolete within his own day.

The work is divided, very much like the practical writings of the ancients, into acute and chronic diseases; and of this we cannot approve. In this country, until Dr Cullen's nosological arrangement go out of repute, it should be followed, even for the sole reason that it is familiar; because, in short, one naturally thinks of diseases in that order, and because facility is the only use and value of arrangement; and whenever it becomes superseded by another, which it will, whenever a better comes, the same eternal reason, convenience, "the mother of right," will instal his successor in his stead.

The individual diseases are carefully treated throughout the work; their pathology and cure perfectly modern. The language, too, is proper and scientific; and to any man who reverences the king's English, it is a blessing to be allowed to turn to Dr Gregory's pages from those of some other medical works we could mention. One thing we much desiderate, the use of the stethoscope in the diagnosis. Can it be, that the very intelligent author has still his doubts? It would be curious to know if this be really the case. The following may be taken as a specimen of his pathology.

"3. It is obvious, that, in estimating the circumstances which may lead to the accidental rupture of a vessel in an internal part, there are three which chiefly merit attention. The first of these is the quantity of blood in the body; the second is the force of the heart's action (these two constituting the *impetus* or *momentum* of blood), and the third is the strength of the coats of the containing vessel, depending principally on the *original* constitution of the body.

By one or other of these considerations, we may explain the manner in which different circumstances act as the predisposing or occasional causes of hemorrhagy, and the *modus operandi* of the remedies which are resorted to, for its relief or removal.

" 1. Plethora, or preternatural fulness in the bloodvessels, is a state of the body, the reality of which is established by ample, as well as the most simple, evidence. It is the common consequence of full living, and of a sedentary life; and it proves a frequent source of disease. A man too full of blood becomes heavy and languid. A state of over distension in vessels gives a disposition to increased action in them; hence it is, that whatever leads to *general plethora* is so frequently found to be a predisposing cause of inflammation, and even of fever. It will be remembered, however, that a state of plethora is by no means essential to hemorrhage, which is compatible even with a state of morbid tenuity of the blood.

" 2. It cannot be doubted, that the mere force of the heart's action has something to do with the occurrence of hemorrhagy; for heat, and violent exertion of the whole body, as in running, are among the most frequent of its exciting causes; and they can only be supposed to act by hurrying the circulation. The idea entertained by old pathologists of a *spurious* plethora has been long abandoned. But the more necessary circumstance to be kept in view, is the connection of hemorrhagy with the state of partially increased action of vessels, or irregular determination of blood; or, as it is now more commonly called, *local congestion*. This has always been recognised as a principle in pathology of the highest importance; and it is undoubtedly the most generally applicable of any which have been established, in the whole extent of pathological science. We have seen it influencing the phenomena and treatment of every form of idiopathic fever. It is the very basis of all reasoning on the subject of inflammatory action; and we shall subsequently find it to extend to many of the most important chronic diseases of the body. In what manner this local determination of blood is brought about,—how it is that the heart, which appears calculated to supply blood equally to all parts of the body, should distribute it unequally, are questions which the inquiries of physiologists have not hitherto enabled us to decide. The fact itself, however, is well ascertained; and it strongly illustrates the great principle which, though generally professed, has yet been too frequently lost sight of,—that the doctrines of hydraulics are but distantly applicable to those of the circulation of the blood *."—P. 302-3.

" 3. The third general condition of the body, which we noticed, as tending to hemorrhagy, is a weakened state of the coats of the bloodvessels. This usually depends on some original formation of body; and it is not unfrequently hereditary. In some constitutions the arterial system appears to be peculiarly weak and lax; and it has been conjectured, that this often occurs in persons of a scrofulous diathesis. In them it is not unreasonable to suppose, that the

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* See a very ingenious Essay by Mr Charles Bell, entitled, " On the Forces which circulate the Blood, being an examination of the difference between the motions of fluids in living and dead vessels." London, 1819.

bloodvessels will give way from the application of causes which would have no such effect in a different habit of body. An idea is entertained by some pathologists, that mere *laxity* of the coats of vessels, independent of actual *rupture*, is sufficient to cause the effusion of blood. That the colouring particles of the blood may *exude* along with the secretions of the part, in certain relaxed conditions of a membrane, is probable: but it is questionable how far this corresponds with genuine hemorrhagy."—P. 304.

We think the ensuing passage affords practical illustration of the utility already derived from the beautiful generalizations of Bichat. A paper from the eminent physician to whom he alludes, will be found in an early part of our number.

" Dr Badham, in 1808, first wrote expressly on inflammation of the mucous membrane of bronchia, and gave to it the appropriate name of *bronchitis*. His views concerning this affection are very clear and just; and his work deserves to be noticed as a pathological essay of the highest merit. The attention of the author was, perhaps, too exclusively directed to that severe but rare disease, which we have already alluded to, under the title of Acute Bronchitis, (p. 206). His deficiencies, however, have been, in a great measure, supplied by the industry of later writers, among whom Dr Hastings of Worcester * deserves particular mention; and the pathology of the mucous membrane of the bronchia, therefore, though far from being complete, may now be considered as having attained some degree of precision.

" Three great divisions of chronic bronchitis might be made, having a reference to the state of the accompanying constitutional symptoms. Sometimes fever is present, to a greater or less degree; sometimes the constitution is wholly unaffected; and at other times, lastly, it is in the state of *asthenia;* but a more extended view of the subject will be requisite, for the purpose of practice.

1. There is a species of bronchitis, which is attended with considerable febrile derangement of the system, and which runs its course in about three weeks or a month; generally so severe, as to confine the patient to bed for a part of the time. This I would distinguish by the name of *subacute* bronchitis. To those who have once suffered by it, it is apt to recur every year, and commonly about the same season. It is attended with the expectoration of puriform mucus, and respiration is performed with a wheezing noise. Occasionally the cough occurs in paroxysms of great violence, and the disease then so closely resembles the hooping cough, that, for a time, it is with difficulty distinguished from it; but the diseases are very distinct in their origin, termination, and treatment. Subacute bronchitis is to be treated on the common principles applicable to all inflammatory diseases. It requires venesection two or three times, to the extent of ten ounces each time, and with intervals of two or three days; and is much benefited by saline and antimonial medicines.

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* A Treatise on Inflammation of the Mucous Membrane of the Lungs, by Charles Hastings, M. D. London, 1820.

"2. This disease, if neglected in its early stages, sometimes ends in ulceration of the mucous membrane of the bronchia, the principal system characterizing which, is the expectoration of a purulent matter, of a *greenish* colour and smooth appearance. This, with attention to the preceding symptoms, will partly serve to distinguish the disease from phthisis pulmonalis, where the matter expectorated usually assumes the form of globules of a white or straw colour. The pulse is frequent, and often full; while at the same time great debility prevails. The patient can generally take a full inspiration, which is scarcely ever possible in advanced stage of consumption, as will hereafter be more fully noticed. Ulceration of the bronchia occurs only in persons advanced in life. It is a disease of great danger, but is still occasionally to be subdued. The ulcers are found, upon dissection, to be always superficial, and generally small. This disease will be assisted by a moderate exhibition of tonics; but upon any urgent aggravation of the symptoms, blood must be taken from the arm, to the extent of four or six ounces.

"3. These cases are very rare, however, when compared with those which I would designate by the name of *common chronic* bronchitis, and which constitute the great bulk of all the cases of chronic or *winter* cough. The symptoms of most importance in a pathological view are, the frequent pulse, and the slightly furred tongue which attend it, and which point out, that the constitution is in a state of febrile excitement. There is a great variety in the other symptoms; but a few of the leading points may be worthy of notice. When pain is complained of, it is generally referred to the head, or the iliac region. A deep inspiration will almost always be followed by a fit of coughing, but it will seldom cause or aggravate pain. The difficulty of breathing is often very trifling when the patient is sitting quiet, but it is highly increased by any exertion of walking, more particularly by going up stairs, or ascending a hill. After such an effort, the patient appears gasping for breath, and ready to faint from weakness. He can sometimes lie on both sides, but the horizontal posture generally increases the dyspnea; and, consequently, in the severer forms and later stages of the disease, he passes both his days and his nights in a great chair.

"The cough, in common chronic bronchitis, occurs in fits, lasting several minutes; and these, in a vast proportion of cases, happen in the morning when walking, or on going to bed at night. The irritability of the membrane is obviously increased in this disease; and the exposure of the skin to the cold air proves, by sympathy, a source of irritation. In like manner, a change of weather, or the inhalation of smoke or vapours, or the taking in of food, brings on a fit of coughing. The matter expectorated varies very much in appearance, but still more in quantity. Sometimes it is thick and ropy, sometimes thin and frothy, and occasionally in such enormous quantity as to excite astonishment. I have seen three pints of a thin mucous, brought up in twenty four hours, and that without any other urgent symptoms. Some attention, with a view to practice, is to be paid, as to whether the expectoration be easy or difficult."—Pp. 214, 215, 216, 217, 218.

The merit of Dr Gregory's production will be better understood, by comparing any of the older writers on the practice of medicine with the following luminous view of the origin of dropsy.

" The *nosological* divisions of dropsies are very necessary in practice, and will hereafter be adverted to; but there are certain *pathological* distinctions among them, which are at least equally important. With these I shall commence; and to explain them shall, in the *first* place, direct the attention of the reader to the general character of the *symptoms* in dropsy; and, *secondly*, To that of the *appearances after death*.

" 1. The distinction to be made among dropsies is, into such as are connected with general constitutional disturbance, and such as are strictly *local*, (employing of course that term in the qualified sense in which it can alone be properly received in medical disquisitions). Of the latter there are three principal forms,—chronic hydrocephalus, ovarial dropsy, and hydrocele. The two former have been already treated of. The latter is exclusively surgical. To this class also belong the cases of accidental anasarca, or *edema*; but as these are very rare, and unimportant in practice, they may equally be excluded from our present consideration.

" 2. When dropsy exists along with constitutional derangement, it is reasonable to suppose, that all the functions of the body participate, and doubtless this is a correct view of the case; but a notion has always prevailed, that the absorbent and sanguiferous systems are those which principally suffer. In former times, *diminished absorption* was viewed by pathologists as the leading feature of the complaint, and in the eyes of practitioners, the great principle of treatment was to stimulate the absorbents. More recently, the circulating system has chiefly been looked to, and increased exhalation has been held up as the proximate cause of dropsy. We are too imperfectly acquainted with the physiology of the *absorbent* system, to determine what share it has in the production of dropsy; but the dependence of this disease on the disturbance of the *sanguiferous* system is obvious, and of the first importance in practice. Dropsy is observed in two very opposite conditions of the vascular apparatus; of which, the one is, increased action either of the heart, or of the arterial capillaries, or both; and the other, feebleness of arterial action, with sluggishness in the venous circulation.

" 3. Dropsy, attended with increased vascular action, is very common, and is either general or local, according as the heart or arterial branches are affected. The morbid action of vessels which gives rise to it, may be either actual *inflammation*, or high *irritation*, or *congestion*. Hydrocele and hydrocephalus, may be taken as instances of local dropsies of this kind. Ascites sometimes accompanies chronic inflammation of the peritoneum, and hydrothorax that of the pleura. Various examples might be offered of general dropsy, arising from, or intimately connected with, this state of circulation. The most common are anasarca from exposure to cold, from the excessive use of spiritous liquors, from oppressed uterine functions (amenorrhea), and from scarlet fever. In all these cases, the dis-

turbance of the heart's action is functional, and admits of a permanent cure. The principle, however, is perhaps most incontestibly displayed in the disposition to dropsy, which comes on in the course of structural diseases of the heart, when that organ labours exceedingly in its functions.

" To this species of dropsy, pathologists have given the name of Acute, Inflammatory, or Plethoric*. We might call it, with some propriety, *arterial*, as it is not necessarily accompanied with plethora or with feverish symptoms, and very seldom runs a rapid course. In this kind of dropsy, the pulse is, for the most part, full and active, but sometimes hard, wiry, and incompressible. There is commonly cough and headach, aggravated by a full inspiration. Dr Blackall † has attached much importance to the coagulability of the urine in these cases on exposure to heat, a phenomenon very frequently, but not universally observed. The exciting cause, where it can be ascertained, and the previous history of symptoms, assist materially in establishing the diagnosis. It occurs, for the most part, at an early period of life, and may often be traced to cold. Its attack is commonly sudden.

" 4. Dropsy is occasionally met with in a very different state of the circulating system; a state of relaxation or atony of the exhalent vessels. This form of dropsical effusion corresponds with that colliquative sweating, which is the frequent consequence of great or repeated loss of blood. It is very often to be observed, therefore, in the latter stages of chlorosis, diabetes, consumption, and hectic fevers of all kinds. Atonic dropsy occasionally follows flooding, great and sudden abstractions of blood by the lancet, and protracted fevers. It is sometimes brought on in the lower ranks of life by the want of proper nourishment; and in all persons it may be induced, by a long continued state of disordered stomach and imperfect digestion. Dropsy from relaxation was a favourite doctrine with the early schools of medicine. They admitted, indeed, of no other species, and were at any rate unaware, that the doctrine of atony and debility applies only to a small proportion of the cases of genuine diopathic dropsy which are met with in common practice. Dropsies of this kind are attended with a weak and languid pulse, night sweats, cold extremities, and, in many cases, a strong disposition to erysipelas, petechiæ, and gangrene. They chiefly occur in elderly persons, whose constitutions are worn out. They commence imperceptibly, and are not traceable to any obvious cause.

" 5. There is still, however, something about dropsy, which is not thoroughly understood. A high degree of arterial action may exist, or the powers of life may be excessively reduced, without dropsy supervening. As, in certain circumstances, there is a peculiar tendency to hemorrhage, so, in others, there is a tendency to dropsy. In what the *hydropic diathesis* consists, it is impossible to define with any accuracy. Possibly it may depend on some

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* This term was introduced about thirty years ago by Dr Grapengiesser, who appears to have the merit of having first accurately described such a form of Dropsy.

† See " Observations on the Nature and Cure of Dropsies." By Dr Blackall of Exter. London, 1813.

condition of the nerves, or on some want of *consent* between the functions of the capillaries, and those of the great arterial and venous trunks."—P. 618.

" 1. The means of relief calculated to obtain the first object, vary, of course, with the kind of dropsy present. In the acute, plethoric, or arterial dropsy, we are to lower the tone of the arterial system, and to lessen the impetus of the circulating fluids upon the exhalent capillaries. For this purpose, it is sometimes necessary to have recourse to bloodletting, or to local depletion by cupping or leeches. At other times, the object may equally be gained by brisk purgatives, nitre, cream of tartar, and other relaxing saline medicines, by antimony, or colchicum. The utility of bloodletting in certain forms of dropsy, has been established on the clearest evidence; but it is right to add, that so powerful a remedy is not *lightly* to be resorted to. In all cases of disease not accompanied by fever or inflammation, great caution is required in the management of the lancet. In the case of dropsy, this is peculiarly necessary; *first*, On account of the debility which, if carried too far, bloodletting produces; and, *secondly*, From its being so often associated with that *passive* enlargement of the heart, which does *not* admit of the detraction of blood. Bleeding in dropsy should never be pushed, therefore, to such an extent as to endanger the occurrence of syncope.

In dropsy from relaxation, or glandular obstruction, the indication of cure is to support the tone of the system, and to rouse the action of the absorbents. Among the *tonic* medicines most serviceable to dropsy, are the bitter infusions, the aromatic confection, camphor mixture, bark, steel, and wine. Of the deobstruent medicines, the most powerful are mercury, squill, and ammoniacum.

" 2. With the second intention (that of promoting the temporary absorption of effused fluid), recourse is had to medicines which determine to the bowels and kidneys. The cathartics most useful in this view, are those called *hydragogues*; in which class are ranked jalap, cream of tartar, elaterium, and gamboge. It is a remarkable fact, that, in almost every case of general dropsy, active purging will do something towards the relief of the patient. It appears in a peculiar manner to excite the absorbent system to action. Of the diuretic medicines employed in dropsy, some are weakening, as digitalis, the acetate of potash, nitre, and colchicum. Others are stimulating, such as the spiritus etheris nitrosi, the oil of turpentine, squill, and juniper berries. The former are chiefly serviceable in thoracic, the latter in abdominal dropsy.

" Great advantages are derived from combining these remedies. Where bloodletting is indicated, digitalis, and occasional purging, are applicable. The best effects have followed the union of digitalis or squills with mercury, (R. No. 96.) There is, probably, no plan of treatment adapted to such a variety of cases as this. Digitalis may often be given with perfect propriety in combination with aromatics and tonics. Lastly, the powers of diuretic medicines are much heightened by mixture.

" 3. The surgical means of relief in dropsy, are tapping and sarcifications. Of their value, I have a fitter opportunity to speak

in the next chapter, when treating of the three principal varieties of dropsical effusion.

We now take our leave of this respectable work, by candidly recommending it to the younger branches of the profession.

II. PRACTICE OF SURGERY.

ART. XXIII.—*On the Nature and Symptoms of Cataract, and on the Cure of that Disease, in its Early Stages, by a Mode of Practice calculated to prevent the occurrence of Blindness, and to render unnecessary the operations of Couching and Extraction. Illustrated by Cases.* By JOHN STEVENSON, Esq. Fellow of the Royal College of Surgeons, and Surgeon, Oculist, and Aurist to his Royal Highness the Duke of York, &c. &c.

THIS is an imposing title to a treatise by an author who is already known by his writings on ophthalmic diseases; and, as the doctrines advocated by Mr Stevenson would, if adopted, go to effect an important innovation in the treatment of cataract, we propose to examine, at some length, the data upon which they are founded. We shall premise our remarks, by stating, that the leading object of Mr Stevenson's publication is to recommend the cure of the disease, as soon as its nature is decidedly established, previous to the accession of blindness, and without waiting for what has been termed the *ripeness* or *maturity* of the cataract. If our readers suppose, from the title of his book, that the author, in objecting to extraction, and to couching, taken in its more common and limited sense, proposes to remove the complaint by any remedial measures short of an operation, they will find themselves mistaken. He has, in truth, selected for his purpose, that modification of couching, in which, after acting upon the lens, or its capsule, *in situ*, by the needle, the surgeon trusts to the agency of absorption for removing the cataract from the sphere of vision. This process was well known, and often had recourse to, by the older operators; but we are indebted principally to the sagacity and talent of the late Mr Cunningham Saunders, for its more general introduction, as well as for the knowledge of its peculiar applicability to the cataracts of children. Mr Stevenson has extended this mode of treatment to the *incipient* malady in adults; and, as he assures us, with the most complete success. Practitioners have been divided as to the *precise period* when the operation for the cure of cataract should be undertaken; but hitherto it has been usual to defer it

at least until blindness had supervened. What the opinions on this subject were, in the time of Mr Sharpe, no mean authority on questions relating to the operative surgery of the eye, may be learned by the following quotation from his works :—" In describing the nature of a cataract, it has hitherto been a *positive maxim*, laid down by *oculists of every nation*, that there is one *certain stage* of the distemper, in which only, the operation is proper ; and this state of the disease is said to be the maturity of the cataract. They have compared it to the ripeness of fruits, and have supposed a regular change in the consistence of the crystalline humour, from the moment it is first affected. They say, the disease, upon its first invasion, gradually liquifies the humour, and that, after its arrival at the utmost period of liquefaction, it then begins to acquire various degrees of tenacity, till at last it becomes perfectly hard ; or, as they style it, horny : That the skill of the surgeon discovers itself, by fixing on that time for the operation, in which the fluidity of the cataract is no obstacle to the depression of it, from its want of resistance to the needle ; nor its hardness from the elasticity of its connecting fibres, which immediately return it to its former position. This, in a few words, is the general doctrine ; but I think the regular alteration of the density of the crystalline humour is very much to be doubted ; and, for my part, I cannot help positively objecting to the rule here laid down ; having not only seen cataracts of *twenty* or *thirty years* growth, often, upon touch of the needle, prove soft and milky, but also many instances, in which a due degree of consistence occurred, after *four* or *five* months, I may venture to say *days*, when the cataract was the consequence of a blow or puncture ; both which changes so little correspond with this supposed change, that they seem not only to overthrow it, but to imply that the cataract, after it has acquired its total degree of opacity, may frequently, if not generally, continue in the same state of tenacity to the *life's end.* And, though I will not take upon me to affirm, that cataracts come always very early to their greatest consistence ; yet this we may safely deduce from these observations, that, whenever they become *entirely opaque*, we may properly undertake the operation ; which has hitherto been my method of operating, nor do I see any reason to lay it aside *."

The theory of the liquefaction, and progressive consolidation afterwards of the lens, has been consigned to oblivion, but the practice founded upon it appears to have survived the hypothesis. Mr Stevenson mentions, in proof of this, among other instances within his knowledge, a case in which the patient had vainly awaited, during the period of *forty years*, the *ripening*

* On the Operations of Surgery, Art. *Cataract.*

of his cataract (p. 177.); and another of a similar kind is recorded by Mr Carmichael, in the London Medical and Physical Journal:—"Both cataracts were operated on by the needle; but it was somewhat extraordinary, that the cataract in the right eye, which had continued *upwards of forty years*, was *fluid;* while the other, which had not existed a fourth of that period, was solid, and easily depressed *."

We shall now return to Mr Sharpe, for the further purpose of shewing that that able pathologist was himself led to infer, that the operation for cataract might safely be performed before the sight was altogether intercepted by the opacity of the lens. "I shall," he says, "observe in this place, that, *contrary to the received opinion*, I have, upon examination, found cataract of a proper consistence to be couched, long before they would have been opaque;" and he states it as his opinion, that the operation might, under such circumstances, be successful, although he did not advise it. It is not a little curious, that we have the authority of Dr Samuel Johnson for believing that Mr Sharpe subsequently sanctioned, if he did not actually adopt, the practice. "Mr Sharpe," observes Dr Johnson, who was a great dabbler in physic," is of opinion, that the *tedious maturation of the cataract is a vulgar error, and that it may be removed as soon as it is formed.* This notion deserves to be considered. I doubt whether it be universally true; but if it be true in some cases, and those cases can be distinguished, it may save a long and uncomfortable delay †."

We have not, however, any precise evidence to shew that Sharpe availed himself of the knowledge he had acquired, by applying it to a practical purpose; and Mr Stevenson is entitled to the merit, whatever it may prove to be, of inculcating, both by example and precept, this mode of treating cataract.

Mr Stevenson's work consists of five divisions, which treat consecutively,—1. Of the history;—2. The varieties;—3. The symptoms of cataract;—4. The removal of the disease by couching and extraction;—5. The advantages of removing the several species of cataract, at an early period of their formation, by the absorbent practice. It may be sufficient, in regard to the three first chapters, to remark, that they comprehend, together with a general outline of the anatomy and economy of the eye, a succinct account of cataract, and its varieties, with an accurate description of the symptoms of the disease. But, as these discussions present nothing new, or that may not be found in other treatises of a similar kind, we shall pass on to the consideration of the remaining, and more important features of the publication.

In the fourth chapter, the author states his reasons for objecting to the ordinary method of couching, including that modifi-

* Vol. xix. p. 312. † Boswell's Life of Johnson, vol. i, p. 340.

cation of it termed *reclination*, and to extracting the cataract; for, in common with almost every modern writer, except the late Mr Ware, he attaches no importance to any external medicinal applications for effecting the cure of the complaint.

—"If I can prove," says Mr Stevenson, "by an appeal to undeniable facts, that their use (couching and extraction) is limited to certain states and species of the disease,—that such a combination of favourable circumstances, as is not generally met with, is indispensable to their success,—that the more ancient of these processes (couching), in addition to other and more serious inconveniences, is frequently found to afford only temporary relief; whilst the modern process (extraction) is not only difficult of execution, but likewise very precarious in its issue,—no apology, it is presumed, can be required for introducing a succedaneum."—P. 47.

The author's objections to couching may be briefly enumerated in the following order:—

1. That, in a small eye, there is not sufficient space for the depression of the lens, without the risk of injury to the internal parts of the organ.
2. The occasional reascension of the cataract into the axis of vision, requiring a repetition of the operation.
3. That, should the vitreous humour be firmer than usual, the proportionally greater degree of force necessarily employed to lodge the cataract in it, may, if incautiously applied, propel the hard lens against the retina.
4. A disorganized and fluid condition of the vitreous humour, rendering it incapable of retaining the depressed crystalline.
5. The chance of *secondary* cataract ensuing, when in the operation the anterior portion of the capsule has escaped laceration.
6. That absorption of the lens cannot take place when undivested of its capsule.

Some of the above mentioned objections to couching refer, it will be seen, to circumstances of incidental and comparatively rare occurrence, while others derive their force from a supposed want of skill in the operator; but all of them, according to the author, may be obviated by the adoption of his plan of treatment. The strongest general argument that can be adduced against couching, is the injury often inflicted, whatever be the size of the eye, upon its internal parts, by the forcible depression of the lens into the vitreous humour, and sometimes giving rise, as Mr Travers observes, to "a slow insidious inflammation, marked by a gradual development of the symptoms of disorganization, viz. congestion of vessels, turbid humours, flaccid tunics, and palsied iris. The sight, instead of improving when the immediate effects of the injury are passed away, remains habitually weak and dim, or declines and fades altogether *."

* Synopsis of Diseases of the Eye, p. 318.

We shall now endeavour to condense into as narrow a space as possible Mr Stevenson's objections to *extraction*, which may be classed in the following order:—

1. The necessity of deferring the operation, as in the case of couching, for an indefinite period, until the lens has acquired a sufficient degree of firmness for the purpose.

2. Its inapplicability, in common with couching, to the cataracts of children, and to capsular cataract.

3. The existence of certain morbid conditions of the cornea, palpebræ, and contiguous parts.

4. An unusually large, or preternaturally small, eyeball, endangering, in the one case, the ejection of the vitreous humour and prolapse of the iris; and involving, in the other, the difficulty of making a sufficiently large transverse section of the cornea.

5. A cornea so much flattened by age or disease, as "to render every attempt to effect a proper flap in the cornea nearly abortive.

6. A convex or bulging iris, narrowing the dimensions of the anterior chamber, and impeding the free section of the cornea.

7. A widely dilated, or permanently contracted, pupil, facilitating, on the one hand, the escape of the vitreous humour, and protrusion of the iris; and rendering the operation almost impracticable, on the other.

8. A dissolved state of the vitreous humour, causing it to ooze out upon the most gentle pressure, and before the lens can be moved from its situation.

Mr Stevenson acknowledges, that "some of the derangements pointed out, which are occasionally found to coexist with cataract, must be regarded only as temporary embarrassments, which may readily be overcome."—(P. 96.) And, it may be added, that certain conditions of the eye, alluded to by him, are such, as would obviously deter any prudent surgeon from undertaking to extract the diseased lens. When, however, under ordinary circumstances, the cataract has become *indurated*, the author is not disposed to undervalue the processes of extraction and couching; and of extraction, in such cases, he remarks, "I esteem it the most eligible plan that can be selected, notwithstanding its acknowledged difficulties and incidental dangers." —P. 81.

It is, however, the difficulty of performing with safety and adroitness this the nicest and most delicate operation in surgery, that constitutes the real objection to extraction. Mr Stevenson remarks, that, "however simple and easy of accomplishment the process of extraction may appear as described in books, it is to be regretted, that an operation, confessedly the neatest, the most imposing, and the most satisfactory, when successful, of

any in surgery, should prove one of the most difficult of execution."—P. 77. He cites, to the same effect, the testimonies of Callisen, Richter, Pott, Sharpe, and Travers. Nor does he omit to advert to the celebrated saying of Wenzel, that "he had spoiled a hatful of eyes" before he had learned to extract; and he alludes to the custom of the late Mr Ware, one of the most able and experienced operators of his time, of reading over, on the eve of an operation, "his twenty-four mementos for the operator in extracting the cataract."

It was the observation of Callisen, that the operation required such consummate dexterity as could be the attribute of few only of the general mass of practitioners; and Mr Sharpe was of opinion, that the difficulty of performing it was too great to allow of its being universally practised.

These considerations apply, although in an inferior degree, to other operations on the eye; and they tend to furnish, we think, a satisfactory reply to the arguments of those who object to that subdivision of labour in the profession, which, independently of the primary divisions of medicine, surgery, and midwifery, has allotted to distinct orders of its members, the more particular treatment of certain classes of disease.

Such an arrangement is, indeed, the natural consequence of the advancement of medical science, and of the progress of refinement in society; and we may apply to it the remark of Priestley, in regard to science in general:—"The objects of science are so multiplied, that it is high time to subdivide them. Thus, the numerous branches of an overgrown family in the patriarchal times, found it necessary to separate; and the convenience of the whole, and the strength and increase of each branch, were promoted by the separation."

Chapter 5th.—Mr Stevenson introduces the last division of his work by observing, that it has not, he believes, previously occurred to any one, to recommend an operation, without regard to the kind or maturity of the cataract, so soon as its character is sufficiently disclosed to enable us to decide upon the real nature and tendency of the disease.

"The mode of treatment," he adds, "which it is the immediate object of the present publication to propose, is not an untried or fanciful or speculative suggestion, but the satisfactory result of long and extensive practical experience of its value and advantages. The distinguishing feature of the plan alluded to, is its applicability at a period of the disease when neither of the common processes is available; and it cures, if I may be allowed the expression, by *anticipation.* For it aims at no less a purpose than the *prevention of actual blindness,* by taking advantage of the agency of the absorbent powers, before the lens or its capsule has become

so far disorganized as to occasion more than an imperfect elcipse of vision."—P. 139.

The operation itself, is, as we have already stated, by no means new, and the author is inclined to think, from a passage in Celsus, that it was not unknown to the ancients : " Si subinde redit eadem (cataracta) acu magis concidenda, et in plures partes dissipenda est *."

It will not be necessary to follow Mr Stevenson in his history of the process, which he illustrates by some interesting extracts from the writings of Bannister, Barbette, and Sir William Read, as well as of more modern authors.

In allusion to the common practice of deferring an operation till the patient is blind, Mr Stevenson asks :

" What would be thought of a surgeon, were he to propose waiting until an *occult* had become an *open* cancer, before he had recourse to the knife for its extirpation? Or, What opinion would be entertained of the abilities and qualifications of a physician, who should venture to inculcate the propriety of withholding his remedies in different kinds of fever, until the symptoms had reached their acmé, or attained their full force and malignity."—P. 157.

These questions, as well as that which follows, deserve attention :—

" Shall practitioners of the nineteenth century, who are well aware, not only that the *soft and fluid* forms of cataract are the most tractable, and the most favourable for the absorbent mode of treatment, but likewise of the physiological principle on which their removal depends,—rest satisfied with this valuable information, without availing themselves of the advantages to which it points? It would, indeed, with difficulty be credited, unless the fact were generally admitted, that, shutting our eyes to the improvements which such knowledge naturally suggests, and disregarding altogether the kind, the progress, and the tendency of cataract, medical men should still permit themselves to be so far influenced by prejudice, and the sanction of antiquity, as to insist upon the *necessity* of postponing the requisite operation until the patient is wholly deprived of sight."—P. 163.

One of the most powerful reasons, in our opinion, for not postponing an operation until that indefinite period, when the cataract shall become *ripe*, is the loss of sensibility in the retina which not unfrequently occurs from the long privation of the stimulus of light; to say nothing of the effects of the inflammatory action which the presence of a cataract is liable to excite.

A friend of ours, some years ago, was induced to submit to an attempt to have a cataract of long standing extracted. After making the section of the cornea, the lens was found to be

* De Medicina, lib. vij. c. vij. s. 14.

in an ossified state, with adhesions of the circumference of the capsule to the iris; and, on the application of pressure to the eye, not the crystalline, but the vitreous humour, in a state of solution, escaped through the aperture, and the operation was abandoned. Inflammation of the most violent kind ensued, followed by a distinct attack of iritis; and the sufferings of the patient were protracted through a period of many weeks. All these unfortunate circumstances might have been prevented by an operation in the early stage of the disease; and which, probably, would have succeeded in restoring the sight of the eye.

In ordinary cases of cataract, the motive usually assigned in favour of delaying the operation, is the advantage presumed to be derived by the patient from retaining as long as possible his imperfect sight.

But, "it may be fairly asked," says Mr Stevenson, "whether it is, in reality, a mark of wisdom, for the sake of preserving for a short time a defective sense of vision, which will probably daily become worse, and soon be found altogether useless, to risk the loss of recent and almost certain relief."—"And what patient," he adds, "already in a state of comparative blindness, possesses fortitude sufficient to enable him to support, without the most distressing apprehensions and misgivings, a condition of existence which, though devoid of pain, is not free from numberless privations and inconveniencies, and of which he cannot foresee the termination." —P. 173.

Mr Stevenson advocates at considerable length the superiority of the absorbent practice generally, when compared to couching and extraction; and, on this point, we readily agree with him, as he excepts, as more suitable for those operations, cases of hardened cataracts. But, as the induration of the lens is the effect of time, he contends, that *every cataract* may, in its *early* stage, be made amenable to the process which he recommends. Some interesting particulars, which we have not space to extract, are mentioned by the author, of the case of an aged nobleman, in whom an early operation for the disease in one eye, had the effect of checking and subduing the morbid action which had commenced in the lens of the other.—(P. 17.) Such a result is not, we apprehend, to be calculated upon; but an instance of the same kind will be found in the paper already alluded to by Mr Carmichael. The patient was operated on for cataract in the *left eye*, which had existed for two years; and at the end of a few months, a slighter degree of opacity, which also existed in the lens of the *right eye*, had disappeared, leaving them both perfectly transparent. The inference drawn by Mr Carmichael, who likewise refers to a similar case recorded by Maitre Jean, is, that when one eye is affected by cataract, sympathy may occasion the same complaint in the other; previous to which, its

removal from the disordered eye will, probably, prevent its formation in the sound one; and, even if it has commenced, the operation may not only check its further progress, but effect a complete cure.

With regard to the disputed point, whether or not an operation should be performed for cataract in *one eye*, when the lens of the other is *entirely free* from opacity; Mr Stevenson, in common with Baron Wenzel, Messrs Carmichael, Saunders, Travers and Samuel Cooper, maintains the affirmative of the question, and brings forward, in support of it, some ingenious arguments, for which, however, we must refer to his treatise, having already exceeded our limits.

It only remains for us to point out, with brevity, the particular advantages proposed by the author, as the result of "an early operation for the cure of cataract:" viz.

1. That much mental distress, the consequence of delay, and its concomitant deprivations, together with the ultimate occurrence of total blindness, is avoided.

2. The applicability of the practice to every variety of cataract.

3. The danger of subsequent inflammation is less than in a more mature stage of the cataract.

4. The patient is freed from other risks and difficulties contingently connected with the operations indicated when the lens has become hard.

5. The internal parts of the eye escape the injury often consequent upon the protracted continuance of the complaint.

6. The occurrence of secondary cataract is precluded.

7. That, should not the incipient disease in the eye least affected disappear spontaneously, the restoration of sight in the one operated on, will generally take place before the opacity in the former has made such progress as materially to interfere with its function.

We have now completed the task we had undertaken of exhibiting an analytical sketch of the contents of this volume. The views therein developed, are advocated with temper and ability; and the impression on our mind is, upon the whole, very favourable to the practice inculcated by the author; and, should it prove hereafter, in the hands of other operators, as successful as it appears to have been in those of Mr Stevenson, the publication of his work will form an era, by no means unimportant, in the annals of ophthalmic surgery. We can, in the mean time, with much satisfaction, recommend the treatise to the attentive and unprejudiced perusal of our readers.

ART. XXIV.—*A Treatise on Dislocations and Fractures of the Joints.* By Sir A. COOPER, Bart., F. R. S. Fourth Edition. London, 4to, 1824, pp. 582.

An Essay on Interstitial absorption of the Neck of the Femur. By Mr B. BELL, Surgeon. Edinburgh, 8vo, pp. 32.

WE quote the titles of the above works, rather as bearing upon the subject of a well known controversy respecting the result of fracture of the neck of the thigh bone, within the adhering circumference of the capsular ligament, and as being illustrative of an interesting case from Dr Begbie, recorded in the first section of this number, than from any intention of entering deeply into the merits of the works themselves. That of Sir Astley Cooper is indeed far beyond our praise; and by the excellent authenticated engravings which accompany it, is justly considered a treasure by the practical surgeon. This fourth edition does not seem to have received many improvements, but the impressions of the plates are still fair, and the whole execution so correct, and so reasonable withal, that we suspect this rare quality is partly to be attributed to the patriotic munificence of the author.

Mr Bell's little work is principally designed to illustrate the changes induced on the neck of the thigh bone by interstitial absorption. It is clear and intelligible, and having the comfortable recommendation of being short, may be consulted with advantage by such as wish to consider the subject under this new point of view.

Since the year 1793, Sir Astley Cooper has taught in his lectures and writings, that fractures of the neck of the thigh bone, within the capsular ligament, are seldom reunited by bone, often not united at all, and when otherwise, almost always by ligament. He states this as a fact consistent with his own knowledge in above 225 cases, p. 111, without having witnessed one single instance to the contrary. He quotes a host of preparations and authorities to the same effect, and renders, from generally received principles, a very satisfactory explanation of the anomaly. He shews, that the affection is peculiar to old people, ibid., whose bones are in general less disposed to unite; that, from the action of the *glutei* muscles, the fractured surfaces of the bone can scarcely be kept in proper apposition, a state which even

Hippocrates knew to be adverse to reunion; that the life of the cervix femoris being supported by the few vessels which enter it through the ligamentum teres, the periosteum and capsular ligament, and, lastly, through the shaft of the bone, that the two latter sources of ossific deposition are, of course, cut off from the head of the bone in the case of the supposed fracture; and, finally, that the same non-union occurs in similar fractures about other joints, and can be imitated by experiment.

Hereupon the uninitiated might inquire what solid ground of opposition can be discovered; or how that can be a controversy where all the proofs look one way; how, indeed, as the satyrists asks, can that be a contest—*Ubi tu pulsas, ego vapulo tantum?* But the fact is, that every now and then cases occur, in which the signs before death, and the appearance of the parts after it, are sufficient to raise doubts as to the *universality* of the doctrine, that fractures never unite within the capsular ligament. Some impression of this kind seems to have been made upon the mind of the eminent discoverer himself, for he explains, in his preface, p. xvii., that "the expression of "never uniting," is a little too strong, for it will be seen in my work, that I have mentioned certain exceptions, in which such union might be possible."

The exceptions, however, which have hitherto been shewn or described to Sir Astley Cooper by others, he has considered as apparent only; and it is here, perhaps, that we may say his fact ends, and his theory begins. It is quite right to assert, that the union within the ligament is rare, because his practice has been sufficiently extensive of itself to demonstate this beyond all feasibility of contradiction; but when, according to the beautiful variety of nature, an exception has been found to his important discovery, it may perhaps not be worth his while to invent hypothesis after hypothesis for explaining this away. The simplest hypothesis would be, to assume, that *nature has sometimes been more liberal than usual in supplying the means of coalition to the divided extremities of the bone, and chance more favourable to their apposition.*

In such a case as that above given by Dr Begbie, for example, where the cause and signs of fracture succeeded each other instantaneously, where no means were ever successfnl in removing the deformity during life, where, after death, no succedaneous receptacle, such as dislocation unreduced must suppose, was discovered; but, on the contrary, very palpable evidence of ossific union in a preternatural solid line, extending through the cancellated tissue of the bone; a man must be more sceptical than Hume himself in all that regards causation, before he can deny that the latter hypothesis is the best adapted for its explanation.

Those other hypotheses have not, however, proved entirely useless. Sir Astley Cooper has pointed out, pages 125-6, the general fact, that the neck and head of the thighbone suffer, in old age, an extreme degree of interstitial absorption, which, in some instances, contrary to the Buffonian theory of old age, leaves the neck of the bone frequently joined to its head by cartilage alone; and exhibiting an appearance, on the whole, not unlike reunion by ligament; and, in other cases, so far eats out the substance of the bone, that the necessary pressure of the acetabulum upon its head, in standing or walking, shortens, in time, the neck of the thigh to such an extreme degree, that the whole limb of that side becomes shorter, deformed, and exhibits, after death, at least the appearance of fracture.

It is to establish this latter point in particular, that we have said the ingenious little essay of Mr Bell is specially directed; and he has enriched it with four handsome lithographs of his own drawing, illustrative of the gradual decrease of the neck, and sinking of the head, of the thighbone.

Now, we have merely, in concluding, to observe, that granting the fact of these degenations being frequent; the application of them to explain cases of apparent fracture is still completely hypothetical; for we doubt whether such a train of events as that described by Dr Begbie, which we have merely selected as the most recent, can be rationally expounded from the most subtle management of these two observations. The instantaneous deformity, pain, and lameness, will not square with the slow march of interstitial absorption, or indeed of any other chronic disease.

III. MIDWIFERY.

ART. XXV.—*Practical Remarks on Lacerations of the Uterus and Vagina, with Cases.* By THOMAS MACKEEVER, M. D. Late Assistant to the Dublin Lying-in-Hospital.

THE work before us, although devoid of novelty, has several other claims to our attention. It contains much practical information on a subject of great importance, and it furnishes us with a numerous collection of cases, which, from the author having had a personal responsibility in all of them, must be viewed as a valuable acquisition to our previous knowledge. Dr Mackeever passed several years as assistant to the Royal lying-in-hospital, Dublin, a field for observation unequalled

by any thing of the kind in this empire. An attempt has often been made to misrepresent, in point of magnitude, this valuable establishment, by styling it the Dublin Lying-in House; but when it is known that 8600 patients have been delivered within its walls in the short space of three years, we have no doubt every man of integrity will consider it, and speak of it, as an object of great national utility. While we are on this topic, it is but justice to state, that the medical officers of this splendid institution, by their long established custom and readiness in giving publicity to the results of their practice, whether favourable or otherwise, have contributed much to enrich our information in this department of medical science.

In the historical part of the Essay, our author endeavours to account for the more frequent occurrence of this formidable accident among the poor, than among females in the higher spheres of life, upon principles, some of which we think have little influence; while those that would have afforded a better explanation of this fact, have been totally overlooked. In support of this position, Dr Mackeever has the following passage.

"It is well known, that many practitioners, extensively engaged in midwifery, have passed through a long professional life, without having met more than two or three instances at farthest of this accident, a circumstance which could hardly have happened, *were all classes of females equally* predisposed to its occurrence. Dr Willan, in a note prefixed to his interesting Report on the Diseases of London, states, that a physician of eminence, in attending 2982 ladies, from the year 1776 to 1800 inclusive, lost thirty patients, one of whom only, died of a laceration of the uterus; and from conversations which I have held on the subject with practitioners of many years standing in this city, I am inclined to think that this may be looked on as the fair average proportion among females in the better ranks."

We neither pretend to be aware who this physician was that is alluded to by Dr Willan, nor to arraign his accuracy, so far as he could be aware of the real cause of death in the thirty cases mentioned, nor do we mean to insinuate, that any number of these ladies lived in the neighbourhood of St Giles or White-Chapel; but this far, however, we can take it upon ourselves to state, that we are in constant correspondence with a practitioner, who, within the last ten years, has been more or less concerned in upwards of 3000 deliveries among the poor; yet, in the whole of this number, the accident happened only once. Few practitioners have had better opportunities of attending to such an observation than Professor Burns of Glasgow, but he makes no mention of it. And, probably, if the facilities of obtaining post-mortem examinations had been as great in every age as they are at present, and if our brethren had been inspired with the

same spirit of industry as those of the present day, Dr Willan's informant would have been able to ascertain, that the proportion of deaths from rupture of the uterus is much the same in all classes. If this accident occurs more frequently among females of the lower orders of society than among those in the higher spheres of life, it must be ascribed to the former being infinitely more numerous than the latter, and more of them bearing children, thus affording a more extensive field for the occurrence of such cases.

Among the causes specified by our author as likely to conduce to a laceration of the uterus, are accidents in the gravid state; rachitis, producing malformation of the bones and contractions of the pelvic cavity; officiousness on the part of the practitioner during labour; and disproportion between the fœtal head and the cavity of the pelvis.

As to accidents during pregnancy, we have occasion to know that they are not so productive of rupture of the uterus as Dr Mackeever thinks. We know of two cases, where the patient, in a state of intoxication during the latter months, tumbled down a long flight of stairs; but in neither of them was there any injury done to the uterus, for both completed their period of pregnancy. One of them was delivered of a stout, healthy, living child; in the second case, however, the fœtus was destroyed, and when labour came on, its side presented. A remarkable instance of severe injury, unattended by rupture of the uterus, is related in the 12th volume of the Medical Chirurgical Transactions, London, by Mr Green. In this instance, a poor woman, in the ninth month of gestation, was run over by a stage coach, near the end of St Thomas's Street, Southwark, and was immediately conveyed to St Thomas's Hospital, where she died in about twenty minutes afterwards. On examining the abdomen, the liver was discovered to have been rent through its substance, but no mention is made of the uterus having been injured. We know of another case, where a patient, very near the full time, received so violent a kick on the abdomen, as to separate the greater part of the placenta from the uterus, and destroy the fœtus. She died in four days of peritonitis, and, on dissection, although there was extensive eccymosis into the sheath of the abdominal muscles throughout the whole extent of the walls of the abdomen, yet there was no lesion of the uterus itself. How does the uterus escape unhurt, when such violence has been exerted upon the parts which immediately cover it? In the gravid state, this organ is of a relaxed, plastic structure, and is never tense or fully distended. This condition enables it the more readily to yield under pressure, and renders it less liable to be injured.

The agency of rachitis in producing rupture of the uterus,

by diminishing the diameter of the pelvis, is acknowledged by every person who possesses an ordinary knowledge of midwifery; and we perfectly agree with our author in thinking, that officiousness, rudeness, inattention, ignorance, and even timidity, may often have a considerable share in occasioning the accident under consideration. Of rupture of the uterus from timidity or irresolution, the particulars of a most unpardonable example which happened, where an individual who considers himself a veteran practitioner was concerned, came to our knowledge. The patient in question had borne two children formerly, when, on both occasions, in consequence of an exostosis on one of the pubic bones, her sufferings were severe and protracted. In this, her third labour, the process was allowed to continue for many hours, from the idea that the event would be no less fortunate than on former occasions. During this delay, however, the uterus was lacerated, and the patient sunk undelivered, and without even an attempt to extract the fœtus, although, several hours before her decease, she had been several times visited by this practitioner. On dissection, it was ascertained, that the uterus was lacerated at several points, and that the head of the fœtus was enlarged from disease. The courts of law in England have, even within the last few years, in several instances, awarded damages against some members of the profession, for a variety of delinquencies; and if a similar course were pursued in the modern Athens, we cannot help thinking it would have a salutary tendency.

In the second chapter of our author, we have a most excellent description of the symptoms which develope themselves after the uterus is ruptured, and we can, with perfect confidence, recommend its perusal to our readers.

"The patient, who, in all probability has had a succession of tedious and of difficult labours, after encountering for many hours, perhaps for days together, sufferings of the most acute and harassing description, and at a time when her anxious friends and attendants are impatiently looking forward to the happy moment which is to free her from her misery, and render her a joyful parent, is suddenly attacked with an agonizing crampish pain referable to some particular spot in the abdomen; during the intensity of which, she exclaims that something has given way within her; she becomes sick, vomits a little, and complains of the child having risen to her stomach. Her pains cease, are altered in character; she looks pale and ghastly, her countenance expressing great mental and bodily distress; she writhes and twists with the severity of her torture, her hand being applied to the part which she describes as the principal seat of it; she sighs often; complains of stitches about the heart; gazes wildly and anxiously about her; has embarrassed breathing, and desires to be raised up in bed."—p. 7.

Dr Mackeever does not consider cessation of uterine action as an invariable symptom of this accident, and we have had occasion to know, that, in this opinion, he is quite correct. In lacerations of the cervix uteri especially, the contractions continue, though somewhat less powerful, until the fœtus is expelled *per vias naturales*, or pushed into the abdominal cavity. It is only where an extensive rent takes place in the fundus or body of the uterus, that the contractions of this organ cease entirely.

The following passage is creditable to the practical acumen of our author, and shews the attention which he has bestowed on this interesting subject.

"We are not to expect, however, that, in every instance, the symptoms will be so obvious, or so well defined, as those I have stated. Thus, when the head is low down, firmly impacted in the pelvis, and the injury is confined to the muscular substance of the uterus, its peritoneal covering continuing entire, we are deprived of several of the leading marks. In the *first* place, there will be no hæmorrhage *externally*, in consequence of the vagina being blocked up; *secondly*, there will be no receding of the presenting part; and, *lastly*, we will be unable accurately to distinguish any part of the infant immediately under the abdominal parietes."—P. 8.

It is of great moment to bear in mind the above observations, as they teach us that a patient may have suffered laceration of the uterus without such accident being followed by sanguineous effusion *per vaginam*. We remember having been lately called to a case, where, from the condition of the pulse, which our author nowhere particularly describes, we were certain that hæmorrhage was going on; but we were at a loss to account for the absence of effusion *per vaginam*, nor did we suspect a laceration of the uterus, as this organ continued to act with considerable power; but when the fœtus was expelled, a considerable quantity of coagula followed, and it was then only that the accident was discovered.

A mania for relating new discoveries is often a predominant feature in the writings of young practitioners. Although we admit that there is much good sense and instruction even to persons of our own standing, to be found in the pages of our author; yet, we cannot help stating our conviction, that he has in one or two instances, at least, betrayed a little of the above vanity or weakness. Dr Mackeever says:

"Before concluding this part of my subject, it may not be superfluous to mention a circumstance which I have known, on more than one occasion, to excite a good deal of uneasiness in the mind of the practitioner, particularly in arm presentations, where considerable force had been employed, in order to bring down the feet of the child. I allude to a firm, fleshy ring, with irregular, jagged edges,

which may be felt on examining a patient a short time after the delivery of the infant and secundines, and giving very much the feel, particularly when we make a hasty examination, as if the uterus were lacerated."

We consider the foregoing precaution as almost equalling in necessity and importance the practice followed some years ago by country matrons, who, when they were unable to remove the secundines soon after the birth of the fœtus, tied the umbilical cord to the bed-post, lest it should slip into the uterine cavity. It is not possible that any person, after passing through a proper practical course of instructions, can betray so much ignorance of the structure of the parts after parturition, as to confound the contracted os uteri with a breach in the parietes of that organ. We are well aware, that it is very much the custom with some teachers and practitioners to magnify difficulties and dangers where none exist, and we think we could even name the source from which our author has borrowed this maxim, which, as it merely tends to embarrass the inexperienced, we shall not cease, on every occasion, to reprobate in proper terms.

In the chapter appropriated to the treatment, we are happy to find that Dr Mackeever very properly enters his dissent against the temporising conduct pursued by the late Dr William Hunter and Dr Denman, and insists upon the immediate extraction of the fœtus, as affording the most certain prospect of relief to the unfortunate patient. For our own parts, there is nothing of which we are more convinced than the injurious consequences of delay, and the happy effects that must, in many instances, result from immediate delivery. Whoever can remain an idle spectator in a case of this kind, must be totally void of affection for his fellow creatures; it is, in fact, witnessing the destruction of one, if not of more individuals, by what we should be inclined to consider a species of slow torture. We are strongly of opinion, that a fearless and dextrous practitioner might often save the fetus, as well as the parent. We should insist, therefore, upon a practitioner, when called upon under circumstances like the present, to divest himself as much as possible of timidity and irresolution, and to proceed *quamprimum* to the delivery of the patient. Our author's arguments against leaving matters to nature, are so forcible and judicious, that we shall give them in his own words. In speaking of the fetus, he says:

"Must not its presence, allowing that the mother should survive its immediate effects, prove a perpetual source of inflammation, and its attendant train of evils,—constant suppurations, wasting discharges, hectic fever, &c. Is it to be expected, that a large lacerated wound, the most difficult of all wounds to be healed by what surgeons call the first intention, should unite under circumstances so exceedingly un-

favourable? Such expectations, in fact, besides being inconsistent with the established laws of the animal economy, are in direct opposition to the result of experience, and to the dictates of common sense.

But it is asserted, instances are on record to prove, that a female, under such circumstances, may not only recover the immediate effects of the injury, but that she may again become pregnant, and have a favourable recovery, while discharging by piece-meal through various outlets this putrid mass. Now, allowing the truth of these statements, although many of them, it must be admitted, rest upon very questionable authority,—to what conclusions do they lead? Merely, I conceive, to this:—that Nature is at times capable of making the most astonishing efforts for the continuance of life,—efforts which not even the most formidable difficulties and embarrassments thrown in her way, can altogether prevent proving successful."—P. 22.

Speaking of the conduct of the practitioner in those cases where the fœtus and secundines, previous to the dilatation of the os uteri, escape among the intestines, Dr Mackeever informs us, that all the leading men in Dublin are in favour of the section of the abdomen, in preference to the forcible dilatation of the uterine aperture. But what is their practice, when the ovum passes among the viscera, after the uterus is fully dilated, we are not informed. This point is still contested. Professor Burns and others think, that the hand should be introduced into the uterus, from thence through the rent into the abdomen, and the fœtus extracted by the feet. The French prefer gastrotomy, unless the breach in the uterus be dilatable, when they recommend the hand to be introduced among the intestines to search for the feet. Cases are recorded and well authenticated, where both these modes of practice have been attended with success.

We are ready to admit, that the fetus has, in some instances, been withdrawn from among the intestines, through the breach by which it entered from the uterus, and that the parent continued to live; but we are firmly of opinion, that, in many of these, the rent could not have been in the body, but in the cervix of the uterus, or in the upper part of the vagina. These latter parts are not endowed with so much contractility as the body of the uterus, and, through an opening in either, the extraction, when early resorted to, may be accomplished with little additional injury to the mother. If a practitioner is on the spot when a rupture happens, and follows the fetus with his hand the moment it is pushed among the intestines, its extraction may be accomplished with comparative ease, even though the laceration be in the body of the uterus. When, however, an hour or two have been suffered to elapse before the delivery

has been attempted, the uterine aperture and rent will have become so much contracted as to preclude the possibility of introducing the hand without exerting much force,—a proceeding, which, as it must be attended with the extension of the original rent, is almost certain to seal the fate of the patient. If the pelvis is capacious, and the head can be reached with short forceps, when a rupture happens, the delivery should be completed with every possible expedition. When the accident in question supervenes to impacted head, the perforator is the only alternative, and should be employed with the least possible delay: Or, when there is reason to suppose, from an individual having formerly experienced much suffering during her labours, that the pelvis is very contracted, we should pursue the same practice. In using the perforator under these circumstances, we would strongly advise the precaution recommended by our author to be pursued, viz. that of pushing the instrument against the side of the head, instead of the part which immediately presents, in order to diminish the risk of the cranium slipping from us; and to obviate the same occurrence, pressure, so far as the patient can support it, should be made upon the abdomen.

Lastly, In every case where the hand cannot be advanced through the os uteri and its rent without considerable exertion, and especially where contraction of these openings is accompanied with great deformity of the pelvis, we should insist upon the section of the abdominal parietes as early as possible. The fact, that many individuals, by immediate delivery, have been snatched from inevitable destruction; and the indelible disgrace which, under most circumstances, must attach to a practitioner who suffers his patient to die undelivered, should stimulate us to the most vigorous exertion. If the abdominal parietes are early divided, we may save the fœtus; and we procure to the patient the additional advantage of giving exit to blood and liquor amnii, extravasated into the cavity of the abdomen. We think that there are now sufficient facts on record, to protect us from the charge of rashness, in recommending this formidable alternative. The first well authenticated and successful instance of this operation, is to be found in vol. iii. of the Journal de Medecine for 1768. It was not resorted to till several hours after the uterus was lacerated, which rendered it useless for the fetus, but the parent had a complete recovery, and suffered little more than what might have happened from an ordinary labour. In the Pathologie Chirurgicale, tom. ii. p. 237, Mons. Lassus relates the particulars of a patient on whom this operation was twice performed with success. On the first occasion the infant was lost;

the second time, it continued to live for half an hour after its emancipation. Its life might probably have been prolonged, were it not for the time that was consumed by one of the sacerdotal order *after the accident*, as the patient insisted on having absolution before submitting to the operation. A fourth successful operation of this nature is related in the 2d volume of the Quarterly Journal of Foreign Medicine, on the authority of M.M. Latouche and Japet. The patient was not operated on for twelve hours after the laceration of the uterus. The particulars of a fifth successful operation were read before the Medico-Chirurgical Society of this city, in April 1825; and as the case has not been made very public, we shall state all that has come to our knowledge respecting it.

" Angela Grossi, æt. 44, a native of Parma, the mother of five children, conceived a sixth time, and went on to the full period of her pregnancy, without experiencing any thing remarkable. On the morning of the 9th of August she was suddenly seised with uterine action, A midwife, who lived in the vicinity, assisted; patient fainted in her arms, after which she was put to bed by the husband and midwife. Patient had severe vomiting, accompanied with a sensation of pulling in the abdomen, as if produced by twins. A surgeon was then called, who supposed that the effects of vomíting had pushed the fœtus towards the upper part of the uterus; that a second effort caused it to descend, and all that the woman required, was to be kept tranquil. The midwife, however, observed the abdomen to swell,—vomiting to increase,—and respiration to become obstructed; in consequence of which, Dr Rossie was consulted, who, on examining the patient, ascertained that the uterus had been ruptured. He instantly consulted his father and some other practitioners, who immediately decided on the necessity of performing gastrotomy. It was done by Dr Cessioni, in the presence of Drs Rossie and Sizzetti, about two hours afte the accident happened. The incision was made in the left hypogastric region, the situation in which the lower extremities were felt, and the fœtus was withdrawn alive, with the secundines. At the end of six weeks after the operation, the patient was able to go out, the catamenia reappeared; and in about three years afterwards she was delivered of a fœtus in the seventh month. The above particulars were laid before the Royal Medical Society of Marseilles in 1818, and were communicated to the Medico-Chirurgical Society of this City, by Dr Louis Frank, Knight of the Order of Constantia, chief Physician and private Secretary to her Imperial Highness Maria Louisa, Ex-Empress of France."

It would be quite inconsistent with the objects of the present review, to offer any remarks on the cases we have now quoted; but, considering all the circumstances under which these operations have been performed, we cannot help observing in conclu-

sion, that they sufficiently support the propriety of resorting to them, under the circumstances we have specified.

As we have in our possession abundant proofs, that, within the last few years only, several patients have fallen victims to this accident, under flagrant neglect and pusillanimity on the part of the practitioner, we shall copy the outlines of a most extraordinary case, from the essay before us, where the assiduity and judgment of our author were crowned with success, under the most untoward circumstances. A robust, healthy, young woman, after having been about 30 hours in severe labour of her second child, had the vagina extensively lacerated towards its upper and back part, the rent communicating with the vesica urinaria. This happened about the 31st July, while under the care of a midwife. The surgeon was called, who, finding the head impacted, used the perforator, and accomplished the delivery after considerable trouble, in consequence of the contracted state of the pelvis. The existence of the injury was detected after the extraction of the fetus. In the afternoon, while one of the female attendants was engaged in adjusting the patient's bed, she observed a substance about six inches in length, and of a smooth shining appearance, hanging from the external parts; but supposing that it was merely a portion of the membranes which had remained after the exclusion of the placenta, she contented herself with placing a portion of rag through the loop which it formed in its descent, upon the supposition, that, in a few hours, it would be separated by the natural efforts.—*August* 1. Had no complaint, unless of great tenderness in the passages. Her bowels, notwithstanding the free and repeated use of purgatives and injections, continued obstinately costive from the time of parturition.—*August* 2. The protruded membrane, as it was supposed, commanded farther attention, when at first gentle, but ultimately violent, efforts were used for its removal, without effect. This imprudent conduct gave rise to a train of formidable complaints, such as tumefactions of the abdomen, incessant pain, vomiting and hiccup, with other unfavourable symptoms. In this condition she continued till the 4th, when our author saw her for the first time. On proceeding to examine the state of the passages, he discovered under the blanket the protruded intestine, apparently in a putrid state. It dropped off on the 7th, and measured about three feet eleven inches; and from its being destitute of *villi* and *valvulæ conniventes*, seemed to be a portion of ilium. About an hour after its separation, the patient had a copious evacuation of fæces *per vaginam*, the first from the time of her delivery. From this moment, a remarkable amelioration in all the symptoms ensued, and she began to improve gradually until the latter end of September following, when she was able to walk about her room. For the first two

years after the accident, there was no discharge whatever *per rectum*, the whole passed by the artificial anus in the vagina. About the conclusion of this period, she was seized with violent bearing down efforts, with tenesmus; and after suffering excessively for about half an hour, she discharged, by the natural passage, a large quantity of dark, pitchy-coloured fæces. She has since voided her fæces by both outlets, but the quantity *per vaginam* has been gradually diminishing. Nearly six months after this last extraordinary discharge, symptoms of pregnancy began to manifest themselves, the discharge of fæces *per vaginam* entirely disappeared, and resumed its original route. She went on to the full time, without any remarkable occurrence; and when uterine action supervened, the delivery was so easy and expeditious that there was no one called to her assistance except a midwife. Our author visited her two days afterwards, found her with a small female infant at her breast, and in every respect doing well.

We take leave of Dr Mackeever with sentiments of esteem; his essay contains much dense, practical matter; his style is unassuming, and his remarks generally judicious. We regret that the observations which we felt ourselves called upon to make, as well as the limits of a work of this nature, would not permit us to charge our pages with more copious extracts; but we trust our readers will consult the work itself, which will amply repay them for their labours. In parting, we must not, however, omit to tell Dr Mackeever, that several negligences have, from sheer carelessness, crept into his composition; which, with some vernacular expressions, such as *naggin*, and *stitches in my heart*, he would do as well to avoid in his next productions.

IV. CHEMISTRY.

ART. XXVI.—*The Elements of Medical Chemistry.* By JOHN AYRTON PARIS, M. D. F. R. S., &c. &c.

THE title of this work is of itself sufficient, independently of the character of its author, to command the attention of our readers; and we have therefore lost no time in bringing it under their notice. It opens with a dialogue between the author and a country practitioner, who has just arrived in London for the purpose of establishing his son as a student of medicine. Dr Paris gives his opinion of the course that ought to be followed on such an occasion, and puts the importance of the

study of chemistry, in particular, in its proper light. After recommending the usual elementary works on that science, he proceeds as follows: "As, however, no elementary work on Chemistry has hitherto been published for the exclusive use of the medical student, I have undertaken to supply the deficiency; and in the execution of this task, I have endeavoured to exclude whatever appeared to me to have no direct application to the profession; indeed, the work is founded upon the notes from which I formerly lectured; and as my pupils were entirely medical, it was my care to collect all the chemical facts of professional interest, to conduct the student to a knowledge of their principles by the shortest path, and to remove from his road every adventitious object that might obstruct his progress, or unprofitably divert his attention." The present volume may, in fact, be regarded as an elementary work on Chemistry, in which those points are more particularly referred to that bear upon the general snbject of medicine; and, therefore, as it is at the same time executed with judgment and ability, will prove a valuable addition to the library of the medical practitioner, as well as of the student.

The work is divided into three parts. The first treats of matter and its properties; of the various forces or attractions that act upon it; of chemical affinity, including a brief exposition of the doctrine of chemical proportions, and the atomic theory; and of the imponderables. The second part contains a description of "Elementary Bodies, and the compounds which result from their combination with each other;" by which is meant that department of the science commonly called Inorganic Chemistry. The third part is on Organic Chemistry. We shall proceed to give a few extracts from each of these three divisions; but as any elementary work upon chemistry must necessarily contain much that is familiar to the reader, we shall dwell chiefly on those subjects where the author has displayed some novelty, either as to matter or manner. On this principle we pass over the greater part of his first division without comment.

Dr Paris has discussed the subject of latent heat clearly and ably, and we give his observations at length, with respect to the absorption of caloric during liquefaction and vaporization.

"Two theories have been proposed: the one by Dr Black, the other by his ingenious pupil Dr Irvine. Dr Black considered the absorption of caloric as the *cause* of the change of form, and as necessary to the constitution of the fluid or vapour. Dr Irvine regarded it as the *effect*, in consequence of the *capacity* of the body thus becoming enlarged. Dr Black's theory is founded on the general analogy of the phenomena to those of chemical combination. We have seen, that, when one chemical agent is merely *mixed* with another, the properties of neither are altered; but, when chemi-

cally combined, they are more or less changed; and it has been shewn, that this combination always takes place in certain definite proportions. Caloric acts upon matter in a manner similar to this: it may be diffused through bodies to a certain extent, without having its properties altered; but in liquefaction and vaporization, it is united to the body, so that its properties are entirely lost. Ought not this, in conformity to general analogy, to be ascribed to its having formed a chemical union, especially since it is absorbed by different bodies, in different quantities, but always in certain determinate proportions? circumstances which extend the analogy between this absorption and chemical combination. But, although the theory appears so far complete, when more minutely examined it will be found deficient. We know of no case of chemical combination, in which the properties of one of the bodies combining are entirely lost, while those of the other are not altered; but in liquefaction and vaporization, this must be supposed to be the case, since, though the properties of the caloric absorbed can no longer be recognised, those of the substance fused or evaporated remain the same. Every solid, too, may be rendered fluid, and every fluid converted into vapour; and consequently, it must be supposed, that caloric is capable of combining chemically with every other body,—a property possessed by no other chemical agent. And, lastly, the contact of any body at a low temperature, is sufficient to reduce a vapour to a fluid, or a fluid to the solid state; and, in such cases, the caloric abstracted does not enter into combination with the body to which it is communicated, but is merely diffused through it, so as to raise its temperature. But that union cannot be termed chemical which is not elective, and which can be so easily broken, by the abstraction of one of its principles, without the interference of a stronger affinity."

"The opinion of Dr Irvine is not open to the same objection, and it is equally adapted to the explanation of the phenomena; but, before we proceed to its investigation, it will be necessary to shew what is meant by the *capacity* of a body for heat."

"Equal weights of the *same* body, at the same temperature, contain the same quantities of caloric. But equal weights of *different* bodies, at the same temperature, contain unequal quantities of caloric. The quantity of caloric which one body contains, compared with that contained in another, is called its *specific caloric;* and the power or property which enables bodies to retain different quantities of caloric, has been called *capacity for caloric.*"

Having explained the method of determining the capacity of different bodies for caloric, he proceeds:

"Such is the simple view of the subject; and it must be remembered, that the term *capacity* is not designed to point out any particular cause, mechanical or chemical; neither does it express any vague obscure idea, as some have maintained. It is merely a general expression, to denote the property which bodies have, of containing *at the same temperature,* and in equal weights or volumes, certain quantities of caloric."

"Upon what this property depends, has not yet been discovered, nor is it, perhaps, a matter of material consequence, so long as the phenomena themselves are correctly observed and stated. It is clear, that whenever the capacity of a body is augmented, there must be an absorption of caloric, and a diminution of temperature, and *vice versâ*. It cannot, then, be doubted, but the absorption and latent state of caloric which take place during the liquefaction and vaporization, are fully accounted for, on the supposition of Dr Irvine, by the change of capacity which accompanies these phenomena. That there should be such a change, is *a priori* extremely probable; for since, as there is reason to believe the capacities of bodies depends on certain situations of their minute particles, it is a probable inference, that, when the form of a body is altered, its capacity also will be altered; and as rare bodies have in general greater capacities than those which are more dense, there is some reason to presume, that the capacity of the fluid will be superior to that of the solid, and that of the vapour or gas to the capacity of the fluid."

"This conclusion is established by experiment; for Dr Irvine found, that the capacity of water is greater than that of ice by one-tenth; and Dr Crawford states the capacity of aqueous vapour to that of water as 1550 to 1000."

"To the theory of Dr Irvine it has been objected, that, if the absorption of caloric be not considered as the *cause* of the change of form, from a solid to a liquid, or a liquid to a vapour, no adequate cause is pointed out. The reply to such an objection is obvious:—It is owing to the body being expanded to a certain degree, by which its particles are so far separated, that the force of cohesion by which they were held together is diminished or overcome, in consequence of which a new arrangement takes place, it passes into the fluid or aërial form, and in such a state as more caloric is contained in it, at a given temperature, a quantity must be absorbed, in order to preserve that temperature. The general question would be unequivocally decided, were it possible to determine whether the change of form precedes the absorption or extrication of caloric, or whether the reverse be the case. But this cannot be directly ascertained, since the two appear to be simultaneous: it is however more probable, that the effect of the reduction of temperature is first to change the form, and that the extrication of caloric is the consequence of this. The late discoveries of Mr Faraday add considerable support to such a supposition; for he has shewn, that the form of a body may be reduced, by merely causing the particles of a body to approximate more closely. By mere pressure, he has reduced gases to the fluid form. This pressure, it is evident, can have only a mechanical effect on the aëriform matter; it must merely occasion a change of form, by bringing the particles into closer contact, and can have no effect in separating caloric, were it chemically combined. Several other facts come in aid of the same conclusion. By the mechanical compression of air, much heat is given out. Thus, if air be suddenly compressed in the ball of an air-gun, the quantity of caloric liberated by the first stroke of the piston is sufficient to set fire to a piece of tinder. A flash

of light is said, also, to be perceptible at the moment of condensation. This fact has been applied to the construction of a portable instrument for lighting a candle. It consists of a common syringe concealed in a walking stick. At the lower extremity, the syringe is furnished with a cap, which receives the substance intended to be fired, and which is attached to the instrument by a male and female screw. The rapid depression of the piston condenses the air, and evolves sufficient heat to inflame the tinder. When, on the contrary, air is suddenly rarefied to many times its volume, its temperature falls sufficiently to sink a very sensible thermometer 50° of Fahrenheit; its sensible heat instantly passing, in this case, into a latent form. This prineiple is well exemplified in a machine erected at one of the mines at Chemnitz in Hungary. In this apparatus, the air, within a large cylinder, is very forcibly compressed by a column of water 260 feet high. Therefore, whenever a stopcock which is attached to the lower part of the cylinder is opened, the air rushes out with violence, and its expansion is so sudden and considerable, that the moisture which was contained in the compressed air is immediately condensed, and falls in a shower of snow."

" From the above considerations, it appears more philosophical to conclude, that the absorption of caloric which accompanies liquefaction and vaporization, is owing, not to its entering into chemical combination, but to the enlarged capacity which the body acquires by the change of form."

We agree with Dr Paris in rejecting the hypothesis of combined caloric; and we would wish to see it generally rejected, because it leads to an attempt to distinguish two series of phenomena, which certainly ought to be classed together. We have always observed students to have great difficulty in perceiving the difference between latent heat and capacity of bodies for caloric. Nor is it surprising, since it is very doubtful if the line which philosophers have drawn is really founded in nature. To form a correct judgment respecting it, let us suppose ourselves free of all theoretical knowledge of the subject; let us imagine ourselves ignorant of what Black or Irvine maintained, and then take a comprehensive view of the facts themselves.

When a solid liquefies, or a liquid vaporizes, a large quantity of caloric enters into the body, without affecting its temperature. When we raise the temperature of a pound of water and a pound of mercury by one degree of Fahrenheit, about twenty-eight times as much caloric enters into the water as into the mercury, and yet the thermometer will stand in both at the same point. Now these two instances are so far analogous, that in each of them a large quantity of caloric is absorbed. Whether we convert ice into water, or raise the temperature of water by one or more degrees, still caloric disappears; and, again, when water is cooled by one degree, or when it is converted into ice, a large quantity of caloric is evolved, of which the ther-

mometer gave no previous notice. With respect to this fact, then, these two cases are identical; and, hence, whatever opinion we adopt of one, will apply equally to the other. If we say, with Dr Black, that caloric has entered into chemical combination, or become latent in one, it will also have become latent in the other; or, if the phenomenon is due to an increased capacity in the one instance, the same explanation will be applicable to the other. It would be more correct to employ the term specific caloric, or capacity for caloric, in both examples, because it only expresses the fact. The expression of latent heat is objectionable, since it is allied to a peculiar and very doubtful hypothesis. It may be said, indeed, that Dr Black's views are preferable, because they explain the change of form; but it may be replied, on the other hand, that it is equally necessary to account for a phenomenon which is no less singular, namely, how the disappearance of caloric should happen without any change of form. The change of form that occurs so frequently, as well as the difference of capacity peculiar to different substances, must doubtless depend on some peculiar relation subsisting between caloric and the integrant particles of matter. What the nature of the relation is, it is impossible to say. Caloric may be united chemically with the particles of matter, or it may be diffused mechanically among them; or both may happen at the same time; but, whichever opinion we adopt, it will be at best but a plausible conjecture, and it is important to keep it distinct from the facts which it is intended to explain.

The author is exceedingly brief on the subject of electricity and galvanism, and the few pages he has devoted to it, are in strict conformity to the plan of the work. We extract the following passage as an example.

"The late researches of Dr W. Philip, and other English physiologists, are well calculated to revive our confidence, and to stimulate us to farther inquiry. From the experiments of this respectable physician, it would appear, that when a nerve is divided, so as entirely to intercept the transmission of its action, the place of the nerve may be supplied by a galvanic apparatus. He divided the eighth pair of nerves, which are distributed to the stomach, and are subservient to digestion, by incisions in the necks of several living rabbits. After the operation, the parsley which they ate remained without alteration in their stomachs; and the animals, after evincing much difficulty of breathing, seemed to die of suffocation. But when, in other rabbits, similarly treated, the galvanic power was transmitted along the nerve, below its section, to a disc of silver, placed closely in contact with the skin of the animal, opposite to its stomach, no difficulty of breathing occurred. The electrical action having been kept up for twenty-six hours, the animals were killed, and the parsley was found in as

perfectly a digested state as that in healthy rabbits fed at the same time; and their stomachs evolved the smell peculiar to that of a rabbit during digestion. These experiments were several times repeated, with similar results. Hence, it would appear, that the galvanic energy is capable of supplying the place of the nervous influence; so that, while under it, the stomach, otherwise inactive, digests food as usual. These experiments are very striking, but they cannot be admitted as affording conclusive evidence of the identity of galvanic electricity and nervous influence. The electricity may merely act as a powerful stimulant upon the twigs which proceed from other nerves to the stomach, and communicate under the place of section of the *par vagum,* by which they may be made to perform such an increase of action, as may compensate for the want of the principal nerve. The respiration is also materially connected with the digestive process; and the increased action thus communicated to the respiratory organs may offer another mode of explanation."

The peculiar views of Sir H. Davy, relative to the nature of chemical affinity, were instrumental in conducting him to the discovery of the metallic bases of the alkalis and earths; and a similar process of reasoning has very recently led that philosopher to a suggestion which is of great practical importance. Dr Paris thus explains the theoretical opinions, and their application.

" It has been considered probable by Sir H. Davy, that the power of electrical attraction and repulsion is identical with chemical affinity. If this be true, we obtain at once a solution of the problem, and can explain the action of the electrical and galvanic fluids, in disuniting the elements of chemical combinations; for it is evident, that if two bodies be held together by virtue of their electrical states, by changing their electricity we shall disunite them."

" In this view of the subject, every substance, it is supposed, has its own inherent electricity, some being positive, others negative. When, therefore, bodies in such opposite states are presented to each other, they combine. Upon this fact, an arrangement has been founded, and bodies are said to be *Electro-Negative* or *Electro-Positive,* according as they are attracted to the Positive or Negative pole of the battery; for it is a common law of electrical attraction, that bodies will be repelled by surfaces which are in the same state of electricity as themselves, and attracted by those which are in opposite states. Upon this principle, it would appear, that the inherent or natural electrical state of the inflammable substances is *positive,* for they are attracted by the negative or oppositely electrified pole; while the bodies called supporters of combustion, or acidifying principles, are attracted by the positive pole, and, therefore, may be considered as possessed of the *negative* power."

" It has been long known," continues Dr Paris, " that the poisonous effects of copper utensils might be prevented by a film of

tin; but it was supposed that this protection ceased, as soon as any portion of the surface was abraded. Proust, however, was the first to announce the fallacy of such an opinion; but his explanation of the fact was purely chemical,—from the superior affinity of the tin for oxygen. Upon the same principle, he stated, that no harm could arise from the alloy of tin with lead, since the latter metal cannot be dissolved by any acid, as long as an atom of tin exists. The true explanation of the fact, however, is to be derived from a knowledge of the electric relations of these metals, which the student will at once discover by referring to Table I. where it will be seen that tin is positive with respect to lead, and that copper is negative in relation to both. For the same reason, if acid matter be contained in a copper vessel, it will become poisonous if a silver spoon be used in stirring it, because this metal is negative with respect to copper, whereas if a leaden or tin spoon be subsituted, we shall derive a protecting influence from its action. It was by reasoning upon this principle of electro-chemical agency, that Sir H. Davy arrived at the important fact, that the copper of ships might be protected from the corrosive action of the sea water, by the juxtaposition of discs of zinc, iron, or tin; in which case the muriatic acid, instead of acting on the *negative* copper, is transferred to the metal which is *positive.* The pursuit of this inquiry has not only confirmed the justness of the views which suggested it, but it has furnished the toxicologist with a striking fact in support of the assertions of Proust; for it has been found on trial, that, when the copper is thus protected, marine insects attach themselves to its surface with impunity *.

" Nor will the surgeon be excluded from his share of benefit from the discovery. Mr Pepys has proposed to preserve steel instruments from rust, by a simple application of the same principle. It will be seen by Table I. that zinc is positive with respect to iron; if, therefore, a portion of this metal be inserted in a sheath composed of some imperfect conductor, the introduction of the steel instrument will complete a simple galvanic circle of the first order, and the iron will be protected from oxidation.

" There is yet another application of galvanism to a purpose of medical utility, which deserves notice,—the detection of minute quantities of corrosive sublimate. For this object, we have merely to let fall a drop of the solution upon the surface of a piece of gold, as, for instance, on a sovereign, and then to bring a piece of iron, as a key, in contact with both; a galvanic circle is immediately formed, and as the iron is positive, the acid will be transferred to it, and the quicksilver will be deposited on the gold.

" It also appears from the experiments of Mr Brande, that galvanism may be applied to the discovery of very minute quantities

* The adhesion of earthy matters and marine insects to the copper is so considerable, from this cause, as to occasion considerable inconvenience, and therefore the preservative process is no longer applied to sailing ships. It is employed, and with success, to protect vessels which are not engaged in active service. We speak from the report of the London journals.

of albumen, which are not rendered sensible by any other test. In this way, he produced a rapid coagulation at the negative pole, in several animal fluids, in which albumen had not been supposed to exist."

(To be continued.)

ART. XXVII.—*Jahres Bericht über die Fortschritte der Physischen Wissenschaften von* JACOB BERZELIUS, *aus dem Schwedischen übersetzt von* Dr F. WÖHLER, 1825.

Yearly Account of the progress of Physical and Chemical Science, by JAMES BERZELIUS. Translated from the Swedish, by Dr F. WÖHLER, 1825.

BERZELIUS is in the habit of giving a yearly account of the most remarkable recent discoveries which have occurred in his own department of science; and as the volume for the present year has just reached us, we conceive it will be agreeable to our readers to see some extracts from the most interesting parts of it.

We pass over the commencement, in which he details the numerous facts that have lately been ascertained on the subject of electricity and magnetism, as the bare mention of them would occupy more space than we can spare. We omit likewise his description of the liquefaction of the gases; for as this important discovery was made in London, and has naturally excited a general interest, it were superfluous to give it here.

"The most important and brilliant discovery of the last year, is that of Professor Döbereiner, who found that platinum, in fine powder, or in the form of a porous mass, such as is obtained by igniting the muriate of platinum and ammonia, possesses the property, even at low temperatures, of causing oxygen and hydrogen gases to unite; and consequently, when a stream of hydrogen is blown upon it in the air, it instantly becomes red, and in a short time passes into such a state of vivid ignition, as to set fire to the gas."—"If the spongy platinum is put into a mixture of oxygen and hydrogen gases, an explosion ensues; but if the metal be made into little balls with clay, it then determines a slow production of water, which continues till one of the gases is totally consumed. Hence this application of platinum may be useful in the analysis of gaseous mixtures.

"The singularity of this discovery is still further increased, by contrasting it with the action of the same substance on the peroxide of hydrogen. If it comes into contact with oxygen and hydrogen gases, it occasions their combination; whereas if the peroxide of hydrogen, in a concentrated state, be poured upon it, oxygen is disengaged with explosions, and the appearance of fire. If the solution

is diluted, then no light is visible, but the peroxide is decomposed with ebullition. It is difficult to account for such opposite effects, under circumstances which are otherwise so similar. It is easy to conceive that electricity may be active in the process; but it is difficult to comprehend how it acts, and why its action should give rise to such contrary results. Döbereiner declares this phenomenon to be owing to the electrical discharge of a galvanic pair formed by the platinum and hydrogen; but it is advisable to wait till further observation shall have afforded a better and clearer explanation, than hastily to adopt one that is inadequate to the purpose."

Berzelius next gives the results of Thenard and Dulong, relative to the circumstances which destroy and restore the activity of spongy platinum. We shall merely notice the remark, "that moistening with water does not weaken its property," which is contrary to our observation. When spongy platinum is brought into contact with water at one point, the liquid rises instantly through the whole mass, as in a common sponge, and its action on a mixture of oxygen and hydrogen, though not destroyed, is materially diminished. Combination does, however, slowly take place, and the heat thus developed causes the evaporation of the water. In proportion as the water is expelled, the activity of the platinum returns; and, by continuing the process for a sufficient time, the metal would at length become dry, and its former energy completely restored.

"Palladium, rhodium, and iridium, when in a state of fine mechanical division, possess the same property as platinum. Nickel, prepared by heating the oxalate of nickel in a close vessel, likewise determines the formation of water at common temperatures, though slowly, and without becoming red hot, as was observed by Döbereiner. No other substances which they tried, acted at common temperatures, but many when heated. Gold, separated from its solution by zinc, and dried at the ordinary temperature of the air, caused the combination of hydrogen and oxygen at 120° C.; and the same occurred at 85° C. if the gold had been first ignited. Arsenium acted at 40° or 50° C. Silver, precipitated by zinc, and gently ignited, at 150°.

"Metals are not the only substances that evince this singular property by the aid of heat; for charcoal, pumice-stone, porcelain, glass, and rock-crystal, cause hydrogen to unite with oxygen at a temperature below 350° C."

Berzelius then states, that the form of the body has an influence on the effect; more water being produced, under similar circumstances, by angular fragments of glass than by those that are rounded. Liquids do not appear to possess the same property, and hence it may be regarded as peculiar to solid bodies. Berzelius alludes to the observation of Sir H. Davy, made some years ago, that hydrogen and light carburetted hydrogen can be made to unite slowly by a certain degree of heat,

—a phenomenon obviously owing to the cause just mentioned, though he was not aware of it at the time*. Dr Henry has lately pursued this subject, and finds that different combustible gases require different temperatures for combining slowly with oxygen, upon which he has founded a process for separating hydrogen, carbonic oxide, and carburetted hydrogen gases from one another.

Berzelius describes some very interesting experiments of Dr Wöhler, who mixed some cork filings intimately with the muriate of platinum and ammonia, and heated the mixture in a close vessel till the former was carbonized, and the latter completely decomposed. The residue was therefore a mixture of metallic platinum and finely divided charcoal; and on exposing it to a temperature considerably below that of ignition, and which was insufficient for kindling pure charcoal, the mixture suddenly began to glow, and burned with unusual vividness till nothing but metallic platinum remained. Mr Cooper has described a species of pyrophorus, which is formed by boiling a solution of platinum with tartaric acid. A black powder forms, which possesses the singular property of taking fire when heated, and leaving the same residue as the foregoing. Dr Wöhler has examined this precipitate, and finds it to be a mixture of metallic platinum and finely divided charcoal. It would seem, from these remarks, that the increased combustibility of the charcoal is owing to the presence of platinum; whence it follows that this metal acts on solid charcoal in the same way as on gaseous hydrogen. It was observed also, that a mixture of finely divided antimony and charcoal, prepared by igniting the tartrate of antimony and ammonia, was very combustible; the antimony appearing to act in the same way as the platinum. Again, he mixed the oxides of copper and lead together, and reduced them both to the metallic state by means of hydrogen gas. A porous finely divided mass was procured, which was very easily kindled. This phenomenon is very similar to what arises from the contact of copper with zinc, iron, or tin. We here perceive a series of phenomena, beginning from the action of platinum on hydrogen, and terminating with the common galvanic arrangements, in which the analogy is most exact and striking; and, although we must verify and extend the experiments of Dr Wöhler, before we can reason upon them with confidence, yet it is very difficult, in the mean time, to withhold one's self from drawing the inviting inference.

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* Philosophical Transactions for 1824.

V. PHARMACY.

Art. XXVIII.—*A Manual of Pharmacy.* By William Thomas Brande, F. R. S. &c. &c.; 8vo, London, 1825, pp. 556.

THIS work professes to be "An Outline of the Course of Pharmacy annually given at Apothecaries Hall," by the author. It contains an account of those articles only of the materia medica, the names of which are to be found in the London Pharmacopœia; and of the pharmaceutical preparations and compounds as directed by that work.

In his description of the articles of the materia medica, Mr Brande has done little more than epitomize the histories of them given in the London and the Edinburgh Dispensatories, and Dr Paris's Pharmacologia. He has, however, added the forms of prescribing many of the articles, which will, undoubtedly, prove useful to the junior members of the profession. It is scarcely possible to give our readers an analysis of this work; we shall, therefore, notice such circumstances only as are new or not generally known.

Under the head *Amygdala amara, dulcis*, Mr Brande notices the preparation of the essential oil of bitter almonds, dissolved in alcohol, which is used by confectioners and cooks; and considers it to be the most convenient form for the pharmaceutical employment of that oil. The proportions are two drachms of the oil and six drachms of alcohol. "The oil appears to be composed of hydrocyanic acid in union with volatile oil. By digesting red oxide of mercury in it, M. Hennell obtained cyanuret of mercury, from which pure hydrocyanic acid was as usual procured by distilling it with muriatic acid." P. 23. The dose of this essential oil, which may be employed in the same cases as prussic acid, is "from one to eight drops or minims in an ounce, or an ounce and a half of any proper vehicle." The Germans think that the prussic acid, furnished naturally by vegetables, is better "adapted for medical purposes than that which is chemically prepared." The following is the formula of Schrader: Take of rectified essential oil of bitter almonds, rectified spirit of wine, of each one drachm; distilled water eleven drachms: Mix. In the country, where well prepared prussic acid cannot be readily obtained, this German preparation might be advantageously employed, nothing being more easily prepared than the volatile oil of bitter almonds. Since the introduction of the prussic acid into this country, as a medicinal agent, we have been in the habit of prescribing the emulsion of bitter almonds, instead of that of sweet almonds, as a vehicle for

other medicines in catarrhal and pulmonary affections, with decided benefit.

Our author considers the cloves "one of the best pharmaceutical aromatics;" and adds, "A five grain pill, composed of equal weights of powdered cloves and jalap, will generally evacuate the bowels." P. 52. In treating of the officinal species of *Cinchona*, he notices the preparations of *cinchonia* and *quinia*, now well known to the profession; and recommends the following formula for the exhibition of *sulphate of quinia*, which we think extremely elegant.

℞ Quiniæ sulphatis, gr. ii.
Infusi Rosæ compositi f℥xj.
Tincturæ Corticis Aurantii
Syrupi ejusdem, ā ā f℥ss.
M. ut fiat haustus bis die sumendus.

We may take this opportunity of remarking, that Mr Stevenson, in his excellent account of South America*, states it his opinion, that unless measures be adopted to preserve the cinchona trees, "this highly esteemed production of the new world will be swept from the country." After the trees are felled, the moderate sized branches are stripped of the bark, which is properly dried and conveyed to Lima; but the bark of the trunk, and the smaller branches, are left to decay in the woods. Mr Stevenson thinks, that *quinia* might be made on the spot, from the bark thus destroyed, and transported to Europe at a very cheap rate: a hint which is undoubtedly of great importance, particularly as the consumption of cinchona has so much increased in Europe, since the discovery of the alkaloids, on which the efficacy of the barks of that genus of plants depends.

M. Guerette of Toulouse has ascertained that much quinia may also be procured from the residuum of the cinchona bark, left after making the decoction. It is retained in the state of a subsalt, and may be obtained by the ordinary process, almost pure on the first crystallization †.

M. Brande states the medium dose of *vinum colchici* too low. We have rarely seen ℥xx. of that preparation procure relief in either gout or rheumatism, when the paroxysms of pain are violent; and have generally found that f℥i. is not too large a dose. He is inclined to accord with the idea, that it exerts some specific action on the animal economy, in these affections. For our own part, we have seldom seen it really beneficial without being

* A Historical and Descriptive Narrative of Twenty Years residence in South America, &c. By W. B. Stevenson, vol. ii. p. 66.

† Archives Generales, Juillet.

followed by purging and the evacuation of much bile. We do not mean to deny, that colchicum, or rather the veratria, on which its efficacy depends, operates as a direct sedative; but we have remarked, that the benefit it produces is never so permanent as when it purges freely, and evacuates the liver.

The article *Digitalis* contains some very necessary cautions respecting the administration of that powerful medicine. After noticing Dr Baildon's experiments to demonstrate the effect of position on the pulse during the operation of digitalis, Mr Brande remarks:

"Upon any sudden, and often upon any trifling exertion, the pulse immediately quickens, the heart throbs violently, nausea and fainting come on; and persons under the full influence of digitalis have not unfrequently died under such circumstances." A consumptive patient "got up in bed, in consequence of being suddenly seized with nausea, and his pulse, which half an hour before was 45, became too quick to count; he then fainted, and some ammoniacal stimulants were administered for his recovery, after which scarcely any pulse could be felt: it was alarmingly slow and feeble. A dropsical woman, 65 years of age, under the full influence of digitalis, fell in a fainting fit in walking across the room. She shewed appearances of recovery, but vomiting and fainting again came on, and she died."—"When such symptoms as have been described come, as they often do, suddenly and dangerously on, they are best treated by small doses of ammonia and ether; paying, at the same time, the utmost attention to the perfect quiet of the patient, who should on no account be allowed to sit erect in bed, and still less to attempt to get up."—P. 78.

We are surprised that Mr Brande has overlooked the effect of digitalis, in producing quiet and sleep, in cases of mania, after the force of the arterial excitement has been reduced by purging. Its soporific power, in maniacal cases, was first remarked by Dr Halleran*, by whom it was given in doses, of ten drops, gradually increased to 60, and in some cases to 123 times a day. It exerted no diuretic quality in these cases, but effectually reduced the maniacal furor, "promoting the most refreshing sleep, and ultimately restoring the sensorial functions, without exciting aught of those uneasy sensations from its activity, which might denote its immediate presence." The correctness of Dr Halleran's observations have been since fully confirmed by the experience of others; and as far as our own opportunities have afforded us the means of observing its effects, we have no hesitation in declaring, that, in our opinion, as an antimaniacal remedy, digitalis deserves more the confidence of the profession than any other article of the materia medica.

Among the medicinal properties of *Hyoscyamus*, Mr Brande remarks: "I have found it of much service in allaying the irritation occasioned by red sand in the kidneys, the constipation produced by opium being in such cases very prejudicial: it may be administered with alkaline and diuretic remedies."—P. 102.

* Practical Observations on Insanity, by W. S. Halleran, M. D. 2d ed p. 98.

Our author has given a very full and satisfactory account of *Opium*, and has questioned the accuracy of the combination of *morphia* wit hthe *meconic* acid, in its natural state, in opium. He has not, however, assigned any reasons for his doubts, which, indeed, extend to the existence of the meconic acid itself; but his doubt, as to the meconate being the form in which morphia is contained in opium, has lately, also, occurred to a French chemist of the name of Robinet, who supposes that he has ascertained by experiment, that, although the meconic acid exists in opium, yet it is not combined with morphia, but with soda; the morphia being combined with another acid, *sui generis*, which, under the supposition of its existence, was termed the *Codeic*, by Pelletier. From the character of it given by Robinet, it differed essentially from the meconic *. The sedative principle of opium, therefore, were Robinet's experiments confirmed, would be a codiate of morphia, which he imagined could be readily separated from crude opium by a process which will be found detailed in another part of our present number. The experiments, however, of Robinet †, have been shewn to be defective by Robiquet; and it is probable that the original idea, of the meconate of morphia being the natural sedative principle in opium, is correct. With regard to the relative quantity of morphia contained in a given quantity of opium, our author justly considers, that it varies extremely in different samples of the drug; but he states the average quantity to be about 500 grains in a pound of good opium. He adds, "from a very carefully prepared sample of English opium, I procured rather a larger quantity of morphia than from the same weight of Turkey opium."—P. 128.

In his account of *Rhubarb* Mr Brande retains his opinion, that it contains no oxalate of lime, although that salt was discovered in it by Scheele, and several of the most distinguished chemists who have succeeded him. This appears to us the more extraordinary, as, some years since, in repeating Scheele's experiments, we obtained oxalate of lime from the specimen which we then analysed; and in another analysis which we have just completed, that salt, although in a smaller proportion than in the former instance, yet was one of the products. He states the quantity of resin, also, to be much greater than we have procured, our specimens yielding 6.10 only, instead of 10 per cent. obtained by Mr Brande.

Under the head *Spongia* Mr Brand has given an account of iodine, which is supposed to be the active ingredient in sponge. For the sake of such of our readers as may not have an opportunity of perusing the papers of Dr Coindet and others, on the

* Journal de Pharmacie, Aôut 1825. † Ibid. Oct. 1825.

medicinal properties of that substance, we transcribe our author's remarks upon it.

"*Iodine* has been administered in bronchocele in various forms and combinations. Though very sparingly soluble in water, it readily dissolves in alcohol, and this furnishes a good means of dividing it into convenient doses. Of a solution of thirty-six grains of iodine in an ounce of alcohol, ten drops have been given three times a-day, in any viscid liquid: this dose has been gradually increased to twenty drops, which have generally proved effectual. Alcoholic solution of iodine suffers a change when long kept, in consequence of a decomposition of a portion of the alcohol, but the medical virtues of the solution are probably not impaired.

"*Hydriodate of potassa*, as it is usually called, is another form of iodine, which is also used in similar cases. It may be prepared by evaporating to dryness a saturated solution of iodine in liquid potassa, fusing the residue out of the contact of air, in a platinum crucible or Florence flask, by which iodine of potassium is obtained, and which, when dissolved in water, in the proportion of forty-eight grains to an ounce, affords a solution which may be given in doses of from ten to thirty drops.

"A third form in which iodine has been exhibited is that of *iodurettted hydriodate of potassa*, prepared by dissolving thirty-six grains of hydriodate of potassa, and ten grains of iodine, in an ounce of distilled water. Six or ten drops are given three or four times a-day in syrup and water, or any other convenient vehicle.

"*Ointments of iodine* have also been employed in cases where it disagrees with the stomach, and as auxiliaries to the other forms. Of an ointment composed of an ounce and a half of hog's lard and half a drachm of hydriodate of potassa, a piece of the size of a hazel nut may be rubbed in upon the enlarged gland night and morning.

"In any of these forms, iodine appears to act as a powerful stimulant upon the absorbent and lymphatic system, and has been tried in various forms of scrofula, and several cases of indolent glandular tumors, with inconsiderable success. It is, however, in decided *goitre* that its effects are least equivocal: these tumors it softens, and gradually excites their absorption, especially when there is no inflammatory action (which ought to be subdued in the first instance by proper treatment), and where the patient is not of a nervous or very feeble habit. If any febrile symptoms intervene, it should be discontinued; also where it accelerates the pulse to any great extent, or where it occasions cough, nervous restlessness, obstinate diarrhea, and emaciation, which is sometimes the case to a very alarming degree. In the hospitals of Paris, it is said that iodine is used as a palliative in cancer."

Our own experience has induced us to place considerable confidence in the power of iodine, in reducing scrophulous tumors and bronchocele; and, if the necessary cautions in its administration be attended to, it will seldom disappoint the hopes of the practitioner. How far it may prove useful in cancer, time must determine; but an instance is on record, in which the entire mamma was absorbed by the continuance in the use of the remedy for several months.

In the second part of his volume, Mr Brande treats of the Preparations and Compounds of the London Pharmacopœia. In examining the chemical composition of these preparations, he employs the equivalent numbers where these have been determined; and has added, as an appendix, a useful table of pharmaceutical equivalents. As an example of the manner in which this part of the manual is executed, we quote the following account of the composition of crystallized *citric acid.*

"They (the crystals) are slightly deliquescent, and contain about 23.5 *per cent.* of water of crystallization, of which only about 6 *per cent.* can be expelled by heat, without decomposing the acid. The analysis of certain anhydrous compounds of citric acid, affords the number 58 as its equivalent, and the crystals therefore may be regarded as containing

1 proportional of dry acid,	- -	= 58
2 proportionals of water,	- 9 × 2	= 18
		76

"Like most other vegetable acids, the citric is a triple compound of oxygen, hydrogen and carbon; but the proportions of these ultimate elements have not been ascertained with precision; at least the results of the best analyses differ widely from each other.

"Assuming dry citrate of lime to be composed of 28 lime and 58 citric acid, its equivalent nnmber will be 86; and 86 parts of dry citrate will require 49 of liquid sulphuric acid, of the specific gravity 1.8, for their decomposition, in the process for obtaining the pure acid: this is always necessarily diluted with a large proportion of water, to prevent the decomposition of a portion of the citric by the sulphuric acid, which otherwise would occur."—P. 195.

In noticing chlorine, its utility as a fumigation for the destruction of infectious matter, and the external employment of its solution, in the form of bath, Mr Brande suggests the application of a diluted solution of it, as a lotion "to indolent and foul ulcers, and to correct the secretion of cancerous sores." P. 202.

In concluding the account of tartarized antimony, he makes the following judicious remark.

"The facility with which it is prepared,—the certain uniformity of its composition,—and the ease with which it is exhibited in divided doses,—and the circumstance of its performing all that can be attained by the other antimonials,—point it out as their common substitute, and lead us to regret, that any uncertain and ineffectual preparations of this metal are retained in the Pharmacopœia."—P. 258.

In conformity with this opinion, although he properly combats the sweeping assertions of some late experimentalists, that the antimonial powder of the London Pharmacopœia is, in every instance, an inert preparation, yet, from the uncertainty of its operation, he proposes the following substitute for it.

"℞ Antimonii Tartarizati, gr. viij.
Pulv. Gum. Acaciæ,
Cretæ præparatæ, āā ʒi.—M.

"Of this powder, sixteen grains contain one grain of tartarized antimony, and from two to four grains will be the average dose for the fulfilment of those indications which are generally expected from four to eight grains of common antimonial powder. In preparing it, the crystals of tartarized antimony should first be reduced to a very fine powder, and the other ingredients added by little at a time, during constant trituration, with a view of insuring perfect uniformity and mixture."—P. 262.

Under the article *Tinctura ferri muriatis*, Mr Brande has given Klaproth's formula, for the celebrated German preparation, known under the name of BESTUSCHEFF'S *nervous tinc-*

ture, the *Tinctura ætherea alcoholica de muriate ferri*, of the Parisian codex, which we extract for the sake of such of our readers as may not have an opportunity of seeing either the *manual* or the *codex*.

> ℞ Ferri pulverati quantum vis:
> Solve in
> Acidi Muriatici sufficienti quantitate, cum Acidi Nitrici quarta parte mixta, et evapora. Massam siccam in colum sepone, ut in liquorem coloris fusci saturati deliquescat.
> Liquorem acceptum misce cum
> Ætheris Sulphurici duplo, conquassando. Ætherem hoc modo ferri soluto impregnatum, separa, et cum
> Spiritus Vini rectificatissimi duplo misce.
> Mixtum in vitris oblongis, bene obturatis, radiis solis tamdiu expone, donec calor omnis evanuerit. Tum solicite serva."
> —P. 282.

The whole of Mr Brande's observations on the mercurial preparations are extremely good; and he has pointed out the fallacy of the common method of testing calomel for the presence of corrosive sublimate, by boiling it in a weak solution of muriate of ammonia, and then adding carbonate of potass; since the result of boiling calomel with solution of muriate of ammonia, is the formation of metallic mercury and corrosive sublimate. The best test is to boil the calomel in pure water, and to add to the filtered and cold liquor a few drops of an aqueous and transparent solution of white of egg. "A white cloud indicates the presence of the perchloride of mercury, or corrosive sublimate." (p. 301.)

Mr Brande, in noticing the different opinions of writers on pharmacy, as to the best mode of extracting the virtues of sarsaparilla, remarks:

> "As far as our experience and experiments go, the virtue of sarsaparilla does not reside exclusively in the cortical part, but is also to be sought for in the amylaceous covering of the central woody fibre, which is dissolved by due boiling, without, as far as we can judge, any injury to the extractive matter of the bark."—P. 380.

We do not exactly comprehend the distinction which, in this passage, is intended to be drawn between the bark and the amylaceous covering, which, in our opinion, is a portion of the bark. Mr Brande can scarcely suppose, that the author of the London Dispensatory and others, who state, that the virtue of sarsaparilla resides in the bark, mean to imply, by the word *bark*, the mere cuticle of that root. Neither can we accord with his censure of the *extract of thorn-apple*, which he states to be "a dangerous and useless article," after having witnessed its beneficial effects in more than one case of paralysis of the lower extremities.

Under the article *spirit of rosemary*, the two following formulæ are given. The first is for the preparation of *Hungary water*.

Take of fresh rosemary in blossom, 4 pounds.
Sage, - - 8 ounces.
Ginger root, - 2 ounces.
Cut, bruise, and pour upon them 12 pints of rectified spirit, and 2 pints of water.
Distil, with a slow fire, 11 pints.

The second is for *Eau de Cologne.*

Take of alcohol 1 pint,
oil of bergamotte,
orange peel,
rosemary, of each, 1 drachm,
bruised cardamom seeds, 1 drachm,
orange flower water, 1 pint,
Distil from a water bath, 1 pint.

In the preparation of the *tincture of capsicum*, "the small capsicum berries," says Mr Brande, "should always be used." It would have been a great omission, certainly, if the species of the plant intended to be used had not been stated in the pharmacopœia, since the acrid principle for which this tincture is useful, is contained in very different proportions in the different species. Mr Brande, therefore, in recommending the small capsicum berries, by which, we suppose, he means the berries of the *C. baccatum* (bird pepper), should have stated his reasons for rejecting the *C. annuum*, the species contained in the list of the materia medica of the London College; for, if the rules of that pharmacopœia are to be observed, it would be improper to make a tincture of the berries of *C. baccatum*, with the same proportion of materials which are ordered for that of *C. annuum.*

In the employment of the *tincture of opium*, Mr Brande properly cautions the prescriber against "combining it directly with the alkalies and their carbonates, and with the greater number of metallic salts, by which the morphia is either precipitated, or enters into new combinations." P. 447. In the same paragraph, however, he states his opinion, that acetate of morphia,—the acetic tincture of opium,—the *black drop*,—and other similar modifications of opium, "are rather calculated to lead to uncertainties in practice, than to any direct advantage in the treatment of disease," an inconsistency which it is difficult to reconcile; for, surely, if the efficacy of opium be injured by the precipitation of the morphia, we may correctly infer, that the insulation of that principle, and the increase of its solubility by its union with acetic acid, is likely to afford the means of securing the utmost influence of opium with more certainty in disease, than can be obtained from the use of the crude drug, adulterated, as it frequently is, and liable to variations of strength from the nature of the seasons affecting the state of the plant; from local circumstances, also, altering the character of its proper juice, and even from the different methods of collecting and preserving the opium.

For the information of those who may wish to make sulphuric ether, and can employ steam in that process, we extract our author's account of the method of preparing it, adopted at Apothecaries' Hall.

"If we attempt to distil ether by steam at the temperature of 212°, or even 220°, very little else than alcohol passes over. A temperature of from 250° to 280° is required for the purpose, so that the pressure under which the steam is generated, must at least amount to that of one additional atmosphere.

"In the apparatus employed for this purpose at Apothecaries' Hall, the still is of cast iron, lined with lead; the steam is conducted through the mixture of acid and alcohol by a contorted leaden pipe at the bottom of the still, and is supplied by a boiler calculated to resist a pressure of 100 lb. on the square inch: in this way, the mixture is very rapidly raised to its boiling point, a larger relative quantity of ether is obtained than when an open fire is used, and all risk incurred by the latter is effectually avoided, the boiler being in a distinct apartment. The condensing apparatus and refrigeratory are of the usual construction, but abundantly supplied with cold water."—P. 456.

"Conducting the process upon a large scale at Apothecaries' Hall, 100 lb. of sulphuric acid, and 100 lb. of alcohol afford about 52 lb. of ether, of the specific gravity of ·761. Fifty pounds of rectified spirit are then added to the residue in the still, and, upon the second distillation, from 46 lb. to 50 lb. of product are drawn over, of the specific gravity ·765. About 100 lb. of impure ether are thus obtained, which, by purification, afford from 55 lb. to 58 lb. of *rectified ether*, of the specific gravity ·733, which is as low as it is usually sold for pharmaceutical purposes; though it is somewhat remarkable, that the Pharmacopœia contains no directions respecting its specific gravity."—P. 458.

The employment of the fresh bulb of *colchicum*, in the preparation of the *vinum colchici*, is very justly reprobated, "from its extreme proneness to fermentation and decomposition;" and the formula suggested by Mr Thomson, in the London Dispensatory, recommended to be substituted for it.

Mr Brande asserts, in treating of the preparation of the strong mercurial ointment, that "there can be little doubt that the metal in it is chiefly in the state of protoxide;" but he advances no reason for his confidence in this opinion. Many excellent chemists, on the contrary, still believe, that the metal, in that preparation, is merely in a state of minute mechanical subdivision, and they are supported in their belief by the experiments of Brugnatelli, Boullay and Vogel. But the most decisive experiment on this subject, is that which was lately made by M. Roux, an apothecary of Nimes *, who prepared mercurial ointment, of good quality, in the exhausted receiver of an air pump, by means of maltha (a petroleum), a substance not calculated to communicate oxygen to the mercury.

Notwithstanding the objections which we have stated to this volume, it contains much useful information; but we doubt, whether it was required, even as a text book for the author's pupils. As a literary production, justice forbids us to say, that it merits the praise of either accuracy or elegance.

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* Journal de Pharmacie, Mai 1825.

ART. XXIX.—*Journal de Pharmacie et des Sciences accessoires.* Redigé par Messieurs E. J. B. BOUILLON LAGRANGE; L. A. PLANCHE; P. F. G. BOULLAY; J. P. BOUDET; J. J. VIREY; J. PELLETIER, &c. 11o. Annee 1825. 8vo. (in monthly num) Paris.

ALTHOUGH the present series of this Journal has existed eleven years, and contains much valuable matter, yet it is very little known in this side of the Channel. It is not our intention to notice every paper which may find a place in its numbers; for, as is the case in all periodical publications, many extraneous articles, and some of little interest, frequently occupy its pages; but we propose to give an analysis of those articles only, which, connected with materia medica, merit attention either from their novelty, or the research which they display, or their practical utility.

The first paper which comes within our plan, is *an analysis of long pepper* *; by M. J. DULONG, *pharmacopolist at Artafort.*

This analysis was suggested by the assertion of M. Perstacolt, that black pepper contained a new alkaline substance on which its properties depended; and although MM. Pelletier and Poulet had proved that this was not the case, yet M. Dulong was of opinion, that the analysis of long pepper would present something interesting.

Treated with separate quantities of boiling alcohol, a reddish brown tincture, hot and biting to the taste, was procured, which, on evaporation in a water bath, left a brownish grey viscid substance, softening on the application of heat, of a sharp acrid taste. The alcohol, which was distilled during the evaporation, had acquired no odour, but was slightly acrid, and became turbid on the addition of water. M. Dulong next treated the alcoholic tincture with hydrochloric acid, according to the process of M. Oerstadt, which we need not detail, and was satisfied that no peculiar alkaloid was contained in long pepper.

The alcoholic extract was then subjected to the action of hot distilled water, which acquired a slightly acrid taste, but did not affect litmus paper. Infusion of galls rendered it turbid; acetate of lead, and nitrate of silver, produced copious precipitates, the latter of which was scarcely soluble in nitric acid, but entirely soluble in ammonia. Nitric acid rendered the solution slightly turbid.

A precipitate obtained by adding subacetate of lead in excess to the above mentioned fluid, was diluted with water, and sul-

* Analyse Chimique du Poivre Long. Fevrier 1825, p. 52.

phuretted hydrogen passed through it. The supernatant liquid being evaporated, a residue of malic acid, mixed with colouring matter, was obtained. Evaporating the same fluid, extractive was procured. What remained, on treating the alcoholic extract with water, being acted on by alcohol, a dry insoluble substance was left, which appeared to be ligneous matter; and the alcoholic solution being slowly evaporated, yielded crystals of *piperin*, during the formation of which, a brown, hot, acrid, fatty matter was formed, which presented some of the properties also of piperin.

Long pepper, after being submitted to the action of alcohol, was treated with boiling distilled water. It was much augmented in bulk, and appeared changed to a gummy, transparent substance, which presented all the characters of *basserine*. The watery infusions filtered, were of a deep red colour, and had a slightly bitter taste. They did not change litmus paper, and were affected by similar reagents, and in the same manner, as the alcoholic tincture; but the precipitate by nitrate of silver, was more soluble in nitric acid. These infusions yielded also a floculent precipitate, with nitrate of barytes and nitric acid; and a violet coloured precipitate, with tincture of iodine, resembling in these respect the infusion of cubebs. Much starch was also procured from these infusions.

Decomposed by destructive distillation, some colourless volatile oil, basserine and carbonate of ammonia, were procured; and when incinerated, the ashes yielded carbonate and phosphate of lime, minute portions of iron and magnesia, and carbonate, sulphate, and hydrochlorate of potass.

From these experiments, M. Dulong concludes, that long pepper is composed of the following substances.

1. A crystallizable resinous matter *(piperin)*. 2. A fat, concrete, acrid, pungent matter, to which long pepper owes its taste. 3. A minute portion of volatile oil. 4. Extractive matter, analogous to that which Vauquelin found in cubebs, differing from it only in containing azote. 5. A gummy colouring matter. 6. Starch. 7. A large proportion of basserine. 8. Amalate, and some other salts.

This analysis of long pepper, adds M. Dulong, so nearly identical with that of black pepper by Pelletier and Poulet, and having so many relations also with that of cubebs by Vauquelin, is another proof, supplied by vegetable analysis, of the truth of that remarkable principle, which Linnæus has so well expressed in his dissertation on plants, "*plantæ quæ genere conveniunt, etiam virtute conveniunt;*" and which Decandolle has so fully developed in his "*Essai sur les propriétés medicales des plantes, comparées avec leurs formes exterieures*," &c.

The same number contains observations by M. Lodibert *on the crystalline matter of the clove.*

M. Lodibert remarks, that although cloves were analyzed by Lewis, Cartheusen, Neuman, and more recently by Trommsdorff, yet none of the chemists have described the crystalline matter of which he is about to treat. Tromsdorff indeed speaks of a resin, which he found in the proportion of 6 per cent. in cloves, but it appears to have been altogether different from that noticed by Lodibert.

Having occasion to compound an embrocation in which oil of cloves was an ingredient, and having expended his stock of that oil, M. Lodibert proposed to supply its place with a saturated tincture of cloves. In preparing this tincture from cloves, imported by the English East India company, and which were slightly hoary (givre), he first observed this saline matter, resembling minute particles of talc, in the alcohol with which the cloves were washed. Satisfying himself that these crystals were not talc, he then made the following experiment: A clove was placed in the alcohol, employed for washing the cloves, and left at rest in a temperature of 12° Reaumur (59° Fahrenheit). On the following day the surface of the clove was covered with small, white, slender, radiated crystals. The quantity of these increased daily during fifteen days, after which they ceased to form, and were collected on a filter, in sufficient quantity to permit them to be examined. M. Lodibert has not given his own experiments on this substance, but adds, to the short account which he has given of it, a note by M. Bonastre on the subject.

M. Bonastre remarks, that this substance, which he has named *Caryophyllin*, is produced, more particularly by Mollucca cloves, commonly called English, from being imported by the English East India company; that those from the isle of Bourbon contain very little, and those from Cayenne none of it. He says, it was first observed by M. Baget, and afterwards procured by himself, from some Bourbon cloves, in small quantity, before M. Lodibert had noticed it; and he concludes, that climate has a considerable share in its production.

Caryophyllin is a white, shining, satiny substance, crystallized in regular globules, composed of diverging rays. It is insipid and inodorous when pure; feels rough between the fingers, but has not the harshness and dryness of the subresin of Elemi and some other gum-resins, nor is it phosphorescent when rubbed. It is soluble only in boiling alcohol and ether. The pure alkalies dissolve it in small quantity in the cold; but still it is probable that it retains a little soluble resin. Concentrated

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* Sur la matière cristalline du Gérofle.

sulphuric acid changes it to a deep red colour, which becomes blackish. When placed in a capsule on the fire, it melts like resin, volatilizes, and forms, on the edge of the vessel, a ring of small, very slender, pure white acicular crystals.

M. Bonastre considers, that its crystallization, appearance, and other chemical properties, class it with the subresins. One hundred parts of Molucca cloves yield one part of caryophyllin.

The number for March contains an excellent paper by M. Pelletier, and the younger Huzard, on the external and anatomical characters which distinguish the horse leech from the medicinal leech; but as it cannot be well understood without the aid of the plates, we must refer our readers, who feel interested in the subject, to the work itself.

In the April number, is "*an Analysis of Jamaica Pepper, the Fruit of the Myrtus pimenta* *," by M. Bonastre.

The fruit of this species of myrtus is a berry, which is decorticated when prepared as the spice known by the name of Jamaica pepper, and consists of a nut with a rugose shell, divided into two cells, each of which contains a kernel.

After treating the entire nut, bruised with alcohol, and finding that it yielded three distinct products, M. Bonastre proceeded to analyze the shells and the kernels separately. He first treated the *shells* with alcohol. Twenty five grammes of the pulverised shells were macerated in two separate portions of cold alcohol and expressed; the liquid was then filtered and evaporated. It reddened litmus strongly, and yielded a brownish-green precipitate, with deutosulphate of iron. Left exposed to the air for some days, this infusion deposited a white matter, mixed with an oily substance, which increased as the evaporation was completed, forming deep green streaks, mixed with a brown extractive matter. The shells which had been macerated in cold alcohol, were next boiled in alcohol; and the infusion, being filtered when hot yielded a yellow flocculent matter, with more of the green oil streaks already noticed. This oily matter has a burning, acrid, very sharp taste, and may be considered the active part of the pepper. Its odour resembles that of cloves, with a rancid taint. It is heavier than water, and dissolves in alcohol and ether, communicating to them a beautiful green colour. The flocculent substance is heavier than water, and appears to have some relation to the concrete part of the essential oil, or the resin of the pimenta, resembling stearin in fat bodies, and the subresins in resinous substances. It dis-

* Analyze du piment de la Jamaique, Myrtus pimenta, &c. April 1825.

solves readily in cold and hot alcohol, and separates with difficulty from it.

The shells, which had been submitted to the action of alcohol, were next macerated in ether, which became slightly coloured; and, when evaporated, left a little green oil. Poured into a solution of tartar emetic, a whitish flocculent precipitate was slowly formed. Some of the same shells, which had been acted on by the alcohol and ether, were put into ammonia. They swelled greatly; and, on neutralizing the ammonia by an acid, the colouring matter was precipitated in the form of brown flocculi, which were neither acrid nor bitter, had only a faint odour, and dissolved partially in ether, communicating to it a bright yellow or green colour, but leaving a deep red insoluble portion, which dissolved, however, readily in soda and potass.

The shells, distilled in water, yielded a heavy essential oil, whilst the water itself acquired aromatic properties; but did not affect either litmus or turmeric paper. The essential oil exists in the proportion of 82 parts in 1000 of the shells; is transparent; almost colourless; heavier than water; of an acrid and burning taste, with the odour of cloves, but less agreeable, and completely soluble in alcohol and ether. It is completely volatilized when heated on paper.

The aqueous decoction of the shells reddens tincture of litmus; tincture of iodine produces a slight blue colour at the surface, which soon disappears; deutosulphate of iron throws down a brown-black; the subacetate of lead a greyish; emetic tartar a white flocculent, and the hydrochlorate of tin a buff-yellow precipitate. It yields, by evaporation, a brown extract, formed of several distinct products.

The kernels contain the same essential and green oils as the shells. They were treated nearly in the same manner as the shells. Without entering further into the details, the following are the results of both sets of experiments:

1000 parts of the *shells* yielded of	
Essential oil, heavier than water,	100
Green oil,	80
White flocculent matter,	7
Extract, composed of tannin,	114
Gummy extract, united with tannin,	30
Colouring matter, soluble in the alkalis,	40
Resinous matter, soluble in alcohol and ether,	13
Uncrystallizable sugar,	30
Malic and gallic acids,	6
Water,	35
Ligneous residue,	500
Saline residue,	28
Loss,	17
	1000

1000 parts of the *kernels* yielded of

Essential oil, heavier than water,	50
Green oil,	25
Brown flocculi,	32
Extract, composed of tannin,	398
Brick-like matter, insoluble in water,	88
Mucilaginous extract,	72
Nauseous uncrystallizable sugar,	80
White flocculent matter,	12
Malic and gallic acids,	16
Water,	30
Residue in the form of pellicles,	160
Saline residue,	19
Loss,	18
	1000

Notice on the extinction of Mercury, addressed to M. Planche.

By M. Joseph Roux, Apothecary at Nisme *.

The object of this communication is to prove, that mercury, when made into the mercurial ointment, and the usual mass with conserve of roses, for making blue pills, is not oxidized, but merely mechanically divided. M. Roux was almost confirmed in this opinion, by employing, for the extinction of the mineral, various substances, which evidently answered the intention, in the direct ratio of their tenacity; but, desirous of settling the question, he made the following experiment. He put a quantity of maltha, reduced to the consistence of syrup, and a portion of mercury into a mortar, which he placed under the receiver of an air-pump, in which he was enabled to rub the materials, by means of a piece of machinery attached to the pestle. Having exhausted the receiver, the mercury was extinguished as completely as if the operation had been conducted in the air.

M. Planche, in his remarks on M. Roux's operation, offers the following experiment, as a farther proof of the accuracy of the opinion which it is intended to support. "If any one," says he, "agitates some of the hydrargyrum cum creta *(Pharm. Lond.)* with separate quantities of cold water in a bottle, and decant off the successive portions of fluid, the whole of the subcarbonate of lime will be separated, and a greyish-black powder left, which, by simple imbibition, by means of bibulous paper, without the aid of pressure or friction, will exhibit the mercury in its metallic state, under the form of globules."

These experiments are, in our opinions, conclusive, as to the

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* *Aperçu sur l'extinction du Mercure, adressé à M. Planche, par M. Joseph Roux, Pharmacier à Nisme.* Maii 1825.

state of the mercury in the preparations alluded to, and which are still regarded by some of the most recent writers of this country on materia medica, as containing a protoxide of the metal.

Note on the Crystallization of Quinia (Quinine), *and on its presence in the decoctions and aqueous extracts of Cinchona; read to the "Section de Pharmucie, Academie Royale de Medecine.* By M. J. Pelletier *."

M. Pelletier ascertained, that the difficulty of crystallizing quinia, depends on its almost insolubility in water, and its great solubility, on the contrary, in alcohol; so that when an alcoholic solution of quinia is left to crystallize, a period arrives when the alcohol becomes too watery to retain the quinia, which is then precipitated under the form of a resinoid substance. To obtain it crystallised, he directs the quinia to be dissolved in alcohol of 40° or 42°, and the solution placed in a cold, dry place, such as a lofty room or a granary, in winter. By this means, the salt is obtained in silky tufts, formed of filaments, which, under the microscope, appear to be elongated prisms, the form of which cannot be exactly determined. The power of crystallizing quinia affords a demonstrative proof of the non-identity of that salt and cinchonia, which have been supposed to be the same substance in different states of purity.

M. Guerette of the military hospital of Toulouse, having discovered that the residue of the decoctions of cinchona bark contains much quinia, which he was able to extract, and asserting, that as much quinia might be procured from it, as from the bark, which is in its natural state *(quina vierge)*; an opinion resulting from a theory which he conceived, that the quinia does not exist ready formed in the bark, but is the result of the union of acid and alkaline principles; M. Pelletier examined both the aqueous extract and the decoction, to ascertain the correctness of these opinions, and in what state the salt exists in the bark. He found that boiling water raises in the bark submitted to its action, a certain quantity of the quinia to the state of an acidulous quinate. "The quinine," says M. Pelletier, "which remains in the bark, appears then to be in the state of a subsalt, little soluble in water, but very soluble in acid liquors. It is to the quinia, therefore, which is found, although in small quantity, in the extracts of cinchona, to which the febrifuge

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* *Note sur la Crystallization de la Quinine, et sur sa presence dans les decoctions et les extraits aqueux de Quinquina, luć à la Section de Pharmacie.* (Academie Royale de Medecine.)

properties of these medicines are to be attributed, notwithstanding the assertion of M. Guerette, that the extracts contain no quinia.

From his various experiments, M. Pelletier concludes, that

1. Quinia is crystallizable, under certain circumstances.

2. That this salifiable base appears to exist in the cinchona bark, in combination with quinic acid.

3. That it is found in the decoctions and aqueous extracts of the bark.

Finally, That the cinchona bark, exhausted by boiling water, contains less quinia than the crude or virgin bark, and that the obtaining it from the residue of the decoction, is not advantageous, on account of the small quantity of sulphate of quinia which it produces.

The quantity of the sulphate yielded by the residue of the decoction, is in the proportion of two to three of that yielded by the crude bark.

The number for July also contains a paper on the sulphate of quinia, entitled, "*Action of sulphate of quinia upon different wines, and observations on the means of recognizing that salt*, by M. Henry."

M. Henry, in prosecuting his inquiries on this subject, was assisted by MM. Pelletier and Caventon, names of great weight in pharmacy. Their experiments were made with four grains of sulphate of quinia, rubbed to powder, and accurately mixed in four ounces of wine, and the mixture left at rest for three days.

1. *Red wines of Languedoc*, which are of a deep colour, vinous and alcoholic, when mixed with the sulphate of quinia, became turbid and violet-coloured, and threw down a lake precipitate, whilst the colour of the wine was sensibly altered. At the end of three days, the filtered fluid was of the colour of the skin of onion, had a very bitter taste, and was opaline. Treated by boiling alcohol, the precipitate afforded a reddish solution, not bitter, which, when evaporated, yielded a dry, brittle substance, of a deep wine colour, insoluble in alcohol, and displaying no traces of quinia. When burnt, although it smelt like burning tartar, yet no potass was found in it. The portion of the wine retaining the quinia in solution, was evaporated to the consistence of an extract; it was reddish and crystalline, and was almost entirely soluble in alcohol. Ammonia formed, in this solution, an abundant flocculent precipitate, of a white salt, nearly equal in quantity to the sulphate of quinia employed.

2. *Bordeaux wines* were affected nearly in the same manner as those of Languedoc.

3. *Burgundy* was not sensibly discolorized, but the results were nearly the same as with the Languedoc wines.

4. *White wine of St George* was slightly changed to an amber hue, by sulphate of quinia, and threw down a small colourless

precipitate, which does not contain quinia, nor does the evaporated wine.

5. *White wine of Bordeaux* suffered no change in point of colour; but, in other respects, exhibited the same results as the other wines.

6. *Sweet wine*, for instance that of *Malaga*, was almost deprived of colour, and formed a very copious deposit, retaining a certain quantity of the sulphate, rendered sensible by the taste which it communicates to the alcohol boiled with it. Perhaps the little solubility of the sulphate in Malaga, comparatively with that in other wines, is owing to this wine being less acid, and less spiritous.

7. In *Madeira*, the sulphate of quinia was completely dissolved; and, at the end of two days, it produced a slight precipitate, the wine having lost a little of its colour, and become opaline. It had the bitter taste of the sulphate, which was not detected in the deposit.

It became next a matter of curiosity to determine in what manner the sulphate operated in destroying the colour of wines. It had been seen, that the sulphate acts more on Bourdeaux wines than on Burgundy. Those wines, containing the sulphate, were treated with different reagents, and it appeared that the tincture of galls threw down a copious white precipitate, scarcely soluble in alcohol, whilst the bitterness of the fluid entirely disappeared. But, as this effect was produced by the tincture, in conjunction with the other principles of the wine, a number of experiments were made with sulphate of quinia, on an alcoholic solution of galls; the result of which was, that that solution acts upon the sulphate by the tannin which it contains, forming a tannate of quinia, which has no bitterness, whether it be dissolved in alcohol or in acids; that the tannate, in precipitating, carries along with it a little gallic acid, but that the greater part remains in the liquid, with the sulphuric acid of the sulphate, forming an acidulous salt of quinia, which is not bitter; that the best method of decomposing this precipitate is to boil it with acidulated water and a solution of gelatin, which forms, with the tannin, an insoluble tannate, whilst the quinia unites itself to the acid.

"Wishing," says M. Henry, "to ascertain in what manner the gallic acid and tannin separately act upon sulphate of quinia, we mixed the solution of the sulphate with gallic acid dissolved in water; it threw down no precipitate, even at the expiration of some days. The evaporated liquor resembled, in many respects, the supernatant fluid of the deposit formed by the tincture of galls. The same result was obtained from the gallic acid saturated by a base. The sulphate of quinia, added to a solution of catechu, formed a reddish precipitate, possessing properties similar to that formed in Languedoc wine. The manner in which the tannin acts upon the sulphate, induced us to think, that the precipitate obtained by mixing that salt in wine may be analogous to that obtained by galls. It was therefore boiled with acidulated water and a little gelatin; the liquid filtered and saturated by ammonia, be-

came extremely bitter. Thence it was evident, that the red wines of the south, containing more tannin than the wines of Burgundy, ought to form a very copious precipitate; and, therefore, the Burgundy which we employed, was scarcely affected, whilst the colour of the wine of Languedoc was almost entirely discharged. The richer, therefore, cinchona is in quinia, the more will it discharge the colour of wine, all other things being equal; and, in fact, equal weights of *yellow*, *Carthagena*, and the *new* (nova) cinchona being added to equal quantities of the red wine of Languedoc, the colour was almost entirely discharged by the *yellow bark*, slightly by the *Carthagena*, and not at all by the *new*, which contains no quinia; whence it must be concluded that the least coloured wines are to be preferred for preparing the *vinum cinchonæ*."

Similar effects were produced by solution of pure tannin, prepared according to the process of M. Deyeux, and also that procured from kino.

These experiments of M. Henry lead to some important practical results. They explain why astringent solutions and tinctures are incompatible in formulæ with infusions and decoctions of cinchona bark; and demonstrate, that the custom of ordering the powder of cinchona to be taken in port wine is founded in error. They also induce us to believe, that, to prepare an effective decoction of cinchona, the bark should be boiled in water, acidulated with sulphuric acid, and containing some solution of isinglass.

REPORT of M. Pelletier *and* M. Guibourt, *on a Memoir entitled*, "*Researches on the employment of Neutral Salts in the Analysis of Vegetables, and the application of this method to Opium, by* M. Robinet."

The first part of this Report is confined to the examination of the fact, that the power of water as a solvent of vegetable matters, is greatly modified by the presence of neutral salts. Thus colouring matters are less soluble in water containing muriate of soda in solution, than in pure water; for example, cochineal communicates scarcely a pink tint to such a solution, and madder only a slight yellow: whilst the saline matters of the vegetable bodies are readily taken up by it. M. Robinet has applied this principle to the analysis of opium; and as his labours were supposed to have thrown a new light upon the composition of this valuable drug, we will enter more minutely into the subject than we should otherwise have thought to be necessary.

The first step of M. Robinet's method of analysis is, to treat one part of opium with six parts of a solution of sea salt of 15° of density, and afterwards with four parts of a similar solution, at the ordinary temperature of the atmosphere.

The filtered fluid is then evaporated; and when the muriate of soda begins to be deposited, a brown oily matter floats on the surface, which is a compound of morphia and the acid which saturates it, in its natural state in the opium. This may be

skimmed off; but it is preferable to evaporate the liquor to dryness. The dry saline mass is next to be digested for some hours, with occasional agitation, in cold alcohol; and after the solution is decanted, the operation is to be renewed, with fresh alcohol, three or four times.

The alcoholic tinctures are then to be evaporated in a sand-bath to the consistence of syrup, and set aside to crystallize. At the end of two days, papillary and needle formed crystals are procured. These are to be drained, washed with a little alcohol, redissolved in a sufficient quantity of boiling water, and crystallized anew. The mother water of this crystallization with the alcoholic mother water of the first crystallization being mixed, are left to evaporate spontaneously, till, as the solution is concentrated, the salt of opium separates from what remains of the muriate of soda; and as it swims on the surface, it may be skimmed off, and crystallized by redissolving it in pure water. Towards the end of the evaporation, a little before the sea salt is deposited, a saline granular crust will form in the bottom of the evaporating dish. This M. Robinet ascertained to be *acidulous meconate of soda*, which may be purified and crystallized by being redissolved in boiling water.

Having proceeded thus far, M. Robinet next treated the residue of the opium treated with the saline solution, with water, cold alcohol, boiling alcohol, and ether. With water, he obtained a certain quantity of the salt of morphia and the meconate of soda; with cold alcohol, a resinous substance, which, when dried, became insoluble both in alcohol and in ether; and with boiling alcohol, a soft substance, which had the odour of opium, but resembled caoutchouc; and which, M. Robinet thinks is likely to affect the animal economy. Finally, treating the above residue with ether, M. Robinet procured the narcotine mixed with an oily substance, from which it was easily separated by re-solution in ether and crystallization.

The reporters accuse M. Robinet of having neglected to examine, in a complete and satisfactory manner, the salts of opium, which he had procured; but give the following account of them, which we translate literally, for the satisfaction of our readers.

"*Of the Acidulous Meconate of Soda.*

"The salt obtained by the process which we have detailed, presents the following characters: It is white, in grains of the hardness of sand. M. Robinet has not been able to determine the geometrical form. It is less soluble in water than the salt of morphia, which accompanies it in opium. Highly rectified alcohol scarcely acts upon it; it may serve to free it from the salts of morphia. Diluted alcohol readily dissolves it; the aqueous solution is acid, and reddens turnsole. It produces an intense red, with the deutoxides of the salts of iron. The concentrated solution yields no precipitates with either muriate of platina, oxalic acid, potass, or ammonia. It is not reddened by nitric acid. On being calcined, it yields subcarbonate of soda; whence M. Robinet concludes, that it is truly formed of meconic acid and soda. On the

other hand, M. Robinet having found, as we have already stated, that the salt of morphia, from which it is separated, contains no meconic acid, is justified in concluding, contrary to the assertion of Sertuerner, that the meconic acid which exists in opium is not combined with morphia but with soda.

" This opinion of M. Robinet appears to us very probable, but not rigorously demonstrated. It is possible that, independent of the salt of morphia, demonstrated by M. Robinet, in which the morphia is saturated with an acid different from the meconic, a meconate of morphia may be present, which, in the progress of the analysis, is decomposed by the muriate of soda, and meconate of soda produced. We admit, however, that this opinion is merely hypothetical ; and it even appears to us very improbable that so strong a base, and so energetic an acid, would separate to form new salts. Besides, why is the other salt of morphia not decomposed ? If M. Robinet, substituting nitrate of potass and sulphate of magnesia, for muriate of soda, to procure the salt of morphia, obtains the meconate of soda, we shall think that the fact is established.

" *Of the Salt of Morphia contained in Opium, and obtained by the foregoing process.*

" M. Robinet occupies a large portion of his memoir with the examination of this salt, and the determination of the acid which it contains. A singular property of that salt is the power of forming an intense blue colour with the deutoxides of the salts of iron. From this property, M. Robinet conceived that it contained either gallic or hydrocyanic acid. After a long series of experiments, he was satisfied that the acid was not the gallic, as it did not precipitate the salts of titanium red, which is effected by the gallates, and even by the artificial gallate of morphia. He was equally certain it was hydrocyanic, because this acid, according to the inquiries of our colleague Robiquet, and the experiments of M. Robinet, does not combine with vegetable alkalis : besides, this blue colour is destroyed by weak acids, alcohol, acetic ether, &c.—agents which do not destroy the colour of Prussian blue, formed by the hydrocyanates and the salts of iron.

" The experiments of M. Robinet upon pure morphic, demonstrate that that base has the property of forming a blue with the peroxides of the salts of iron ; a new and excellent means of distinguishing morphia from the other vegetable alkalis, which, like it, are reddened by nitric acid. But what is the acid which saturates morphia in opium ? We would say that it is a new acid, if we, as well as M. Robinet, did not think that it is the acid different from the meconic, which M. Robiquet had detected in opium,—an acid, the properties of which are still unknown, but to which M. Robinet, who has obtained it pure and crystallised, means to consecrate the third of this memoir. To separate it from the morphia, M. Robinet dissolves the salt in water, and adds to the solution subacetate of lead, which throws down a white precipitate, composed of lead and the new acid. This precipitate is washed, and decomposed by sulphuretted hydrogen. The acid remains in solution, and this being filtered and evaporated, it is obtained crystallized by cooling. M. Robinet acknowledges that this is the process employed by M. Robiquet for the acid which he had detected, and that, if he has obtained his acid more pure, and in a state which enabled him to examine more accurately its properties, it is because it possesses greater purity in a state of combination with morphia.

" This acid not only crystallizes, but also forms crystallizable salts with potass, barytes, ammonia, and magnesia. It is to form, as we have said, the subject of a particular memoir.

" The author, in his memoir, has not named this acid. We shall propose to him to call it *Codiac Acid*, from κωδια, a poppy head. The natural combination in opium would then be the *codiate of morphia.*

" The codiate of morphia is more soluble in hot than in cold menstrua. It crystallizes in silky needles, which part from a common centre, and form papillæ hirsute with points. It is soluble in alcohol, insoluble in ether, reddens concentrated nitric acid, dissolves without effervescence in dilute sul-

phuric and hydrochloric acids. Among the metallic salts the muriate of platina, and the subacetate of lead, only precipitate it.

"*Of some Properties of Morphia.*

"M. Robinet could not labour so much upon opium, without discovering some new or little known properties of morphia. To say nothing more on the property of striking a blue colour with the salts of iron, we may mention the precipitation of all the salts of morphia by the muriate of platina; and we engage M. Robinet to make known to us the nature of that precipitate. A very important point in the history of morphia, is its solubility in the mineral alkalis. It was well known that an excess of ammonia or potass redissolved morphia; but M. Robinet has shewn, that this solubility is greater than was imagined, and extends to barytes and lime. Some of these combinations crystallize. One solution of potass, concentrated and changed with morphia, when exposed to the air, was converted into subcarbonate of potass, and the morphia separated in acicular crystals, which retained no trace of carbonic acid."

Impressed with the singular results of the foregoing analysis, and the importance of procuring morphia in the state in which it exists in opium, we were induced to repeat the experiments of M. Robinet, and obtained, in our analysis, a salt, which had so many of the characters of a muriate, that we were inclined to think, that, by some mismanagement in the manipulation, we had not been able to separate entirely the muriate of soda, although the crystals which we obtained were repeatedly dissolved and recrystallized. The crystals which we have obtained are of an irregular cubical form, covered with minute papillæ; have a subsaline, bitter taste, and are very soluble both in water and spirit of wine. Dissolving a few of these crystals in a large quantity of distilled water, and touching the surface of the solution with nitrate of silver, a copious, white, insoluble precipitate was immediately produced; and pouring upon another portion of them some strong sulphuric acid, white fumes were separated, which became more opaque, and increased to a voluminous cloud on holding over them a glass rod dipped in ammonia. These tests were sufficient to convince us that muriatic acid was present in the salt we had procured, as the codiate of morphia; but we were undecided as to its origin, when we received the October number of the *Journal de Pharmacie*, which satisfactorily resolved our doubts.

In a report on the works read in the *Section of Pharmacy of the Royal Academy of Medicine*, we find the following paragraph:

"We have noticed the labours of M. Robinet on the analysis of vegetable bodies by means of saline solutions, and the results to which it conducted. But, in one of the late sittings, Professor Robiquet repeated his investigations, and has obtained some very important results, which prove that the analysis by the saline solutions is not mechanical as was supposed; but, on the contrary, affords an example of double decomposition or exchange of bases. According to M. Robiquet, the organic alkalis are not united to acids in vegetables, but to particular substances which act the same part, as the colouring matters, &c. The vegetable acids are combined with the earthy or fixed

alkaline bases of the plants. M. Robiquet, repeating the analysis of opium by means of saline solutions, obtained at first a pitchy precipitate. The supernatant fluid filtered, submitted to ebullition, and, mixed with ammonia, threw down a very small precipitate of morphia. The fluid left at rest, being still alkaline, deposited a granular precipitate, which, on being purified and examined, was recognised as muriate of morphia. The hydrochloric acid had been furnished by the sea salt. This fact raised doubts respecting the codiate of morphia, announced by M. Robinet; and repeated experiments proved that the salt obtained, which presented absolutely the characters of the salt of M. Robinet, was a true *hydrochlorate* of morphia, very easily detected by the vapours which it exhales, when treated with concentrated sulphuric acid, and the insoluble precipitate, which it gives with nitrate of silver. M. Robiquet thence raises well founded doubts as to the existence of codiac acid, and the codiate of morphia in opium; and M. Robiquet thinks also, that the meconate of soda announced by M. Robinet results from an exchange of bases, which frequently happens in complex combinations. M. Pelletier, since the publication of his report on the essay of M. Robinet, has also recognised a muriate of morphia in the pretended codiate."

With these remarks we close the analysis which we think necessary to offer to our readers of eight numbers of the Journal of Pharmacy of the present year, and reserve that of the remaining four to occupy a few of the pages of our next number.

VI. MEDICAL JURISPRUDENCE.

Art. XXX.—*Remarks on the subject of Medical Jurisprudence.*

In appropriating certain departments of our Journal to this interesting branch of medical study, we do no more than its intrinsic importance, and its advanced state of cultivation, imperatively demand. Until very lately it would have been necessary (at least in a prefatory article), to have given some formal explanation of its objects, and probably to have argued for the expediency, if not for the advantage, of paying some attention to them. Such necessity no longer exists; and to produce a medical journal in which the claims of this science should be overlooked, or but incidentally noticed, would be to depart as widely from established usage, as, a few years ago, it might have been to make the appropriation we here do.

On the present occasion, we do not intend to enter upon details, or particular topics. Of these we shall, from time to time, give due share of notice, in future numbers. We shall restrict ourselves now to a very few remarks on the present state of the science, and the course we intend to pursue in hereafter promoting its advancement.

From having been altogether overlooked among medical wri-

ters, the literature of this department has at once assumed a most respectable rank. The example set by Dr Male *, was soon followed by Dr Smith † to greater extent, and again expanded by the united labours of a distinguished physician and a barrister ‡, into a work of considerable authority, for the purpose of reference,—forming altogether, though in few volumes, a body of information almost sufficient for the exigencies of the practitioner under any circumstances, provided he be disposed to second the labours of these authors by adequate industry on his own part, when called upon to elucidate particular difficulties. Besides these general treatises, we possess a few on particular topics, written expressly for the use of the medical witness ‖; and it is to be hoped that others will yet be produced, offering the advantages of a body of information, deduced from experience and observation, expressly directed to their several topics, and corroborative or corrective, as the case may be, of what has already been published, either at home or abroad.

The works alluded to are in the hands of lawyers, who carry them on the circuits, and, without much trouble, gather sufficient acquaintance with their details, to enable them to put questions to professional men in the courts, which the latter cannot so easily acquire the means of answering. For, while we consider it matter for congratulation, that we have these works to refer to, we must add, that, without other exertions than merely perusing them, it will hardly be possible for any member of the profession to become an authority on those points that compose their subject-matter.

We have long wondered at the apathy which has been maintained in too many of our schools upon this point. Nay, we might warrantably add in them all; for, although we have had a professorship of Medical Jurisprudence in our University for these twenty years; and regular courses of lectures have been delivered by most accomplished teachers, during the greater part of that period; not only has this been the sole provision of the sort hitherto established within the British Empire, but, till now, the advantages thereby offered to the student have been

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* Elements of Juridical or Forensic Medicine, by G. E. Male, M. D. 8vo, 1817.

† The principles of Forensic Medicine, &c. by J. G. Smith, M. D. 1821. 2d, Edition 1823.

‡ Medical Jurisprudence, by J. A. Paris, M. D. F. R. S. &c.; and J. S. M. Fonblanque, Esq. Barrister at Law, in 3 vols. 8vo, 1823.

‖ Among these the following merit particular notice. The translation of Mahon's Essay on Infanticide, with valuable notes, by Mr C. Johnstone of Lancaster. Dr Hutchinson's Dissertation on the same subject. Dr Harlam on Medical Jurisprudence, as regards Insanity. A small tract by Dr Johnstone of Birmingham on the same subject. And Dr Gordon Smith's Analysis of Medical Evidence.

left to his own option, to accept or reject them. In London matters have been upon a still worse footing; for there (until the present moment, that our colleague has offered his services as a teacher in this department), something almost beyond neglect has prevailed. Endeavours have been made to supersede the claims of medical jurisprudence, as a separate and connected study, by professing to introduce its relatives to sundry other branches, in a subordinate manner, when professedly teaching these. It is matter of serious regret, that, in the execution of this desultory scheme, not only have the greatest defects unavoidably characterised every one of these attempts, but several of them have led to the propagation of the greatest misapprehensions, and the dissemination of the most injurious practices. Numerous proofs of this assertion could be adduced; and much of what we shall have to advance in future numbers will amount to exemplifications of its truth.

As to the necessity for considering this branch as a study possessing pretensions to separate cultivation, besides the peculiar walk into which its practical exercise leads us, we may look to its peculiar constitution. Although identified with all the tributary provinces of medical science, it is made up of many applications of these that can be ranged with no other course of instruction, or find notice in any thing like a satisfactory manner, except when gathered together and arranged according to their peculiar principles.

There have been too many glaring proofs, that ordinary professional knowledge, however accurate or extensive, possessed even by the most accomplished and intelligent practitioner, is not sufficient for the duties of a witness on scientific points in a court of justice. Some of the most celebrated medical philosophers have there acquitted themselves but indifferently; and we might confidently appeal to those who have been subjected to a severe examination under such circumstances, whether the wish did not at the moment present itself, that they had studied the particular purpose they were called on to advance?

We may venture to assert, that no circuit is held without a considerable number of medical witnesses being cited to give evidence upon points relating to the natural economy of the living system, not only in health and *disease* (in the ordinary sense of the latter term), but also as acted upon by, or connected with, extraordinary influences. Violence of every species, imputations, or pretensions, as to peculiarities of an unusual and not unfrequently of a singular nature, and almost every delicate question that calls for the confidential aid of the medical adviser, for private satisfaction and guidance in matters of importance to society, may furnish occasion for placing him in the

situation of a public witness. To follow the suggestions of experience and skill in furnishing the means of relief is one exercise, to declare the merits of an accusation upon oath, and in the face of the world furnishing thereby matter of record for the page of history, is quite another. Yet how little thought is bestowed upon the arduous enterprise, and how little fitness is displayed for entering upon it!

There has been a very prevalent feeling in the profession towards occasions of this nature, as if they were misfortunes, which, if unavoidable, must be endured, in the hope that, once past, they may not occur again. It is matter of regret that it should be so, with respect to the best opportunities we have of displaying our professional acquirements before the public. How much wiser would it be to aim at taking advantage of such opportunities to raise our own respectability, and at once advance the claims of our profession!

There is little doubt that a growing sense of its general importance, as well as its urgent claims on the practitioner for his personal comfort and respectability, must soon place this science among the *necessary* studies that compose the aggregate of medical education; and we hope that the professional corporate bodies who preside over and arrange the course of study, in order to exercise the practice of the profession, will follow the example long set them in the medical schools of the continent, and now, in some measure, adopted in our University, of ordaining that it shall be so in future. Should this not be soon accomplished, we understand that the attention of the Legislature will be excited to the matter, as well as to the deplorable state of midwifery, as now prevalent throughout the kingdom. An association of the most respectable accoucheurs is forming in London for this purpose; and so strong is the call for reformation on this head, that attention must be paid to their representations.

The occasion is favourable for the commencement of a regular series of medico-legal communications of a periodical description. We have it in our power to promise our readers, from time to time, intelligence of a novel as well as interesting nature, on various points of great importance to their more ordinary, as well as their forensic duties; although directed prominently to the improved discharge of the latter. A course of experimental inquiry is about to be carried into effect, under our immediate notice, for a direct medico-legal purpose; and even if it should lead to no important *discoveries*, the settlement of various questions with regard to a variety of topics at present undecided, or at least far from being familiarly or satisfactorily known to the profession, is confidently anticipated; and

the results will be laid before our readers. In the department of toxicology ; on the problems of infanticide, and the signs of death by strangling and drowning, in particular, we trust that certain disputed points will be cleared up. The evidence offered in courts at present, upon some of these subjects, is perplexed in a great and inconvenient degree ; and has of late repeatedly led to public animadversion on professional witnesses, in a way that may justly excite additional alarm in the minds of those who have the performance of such duty in view, although in truth there is more than enough of this connected with such occasions already.

We think it advisable to protest, that, although we have taken the term *medical jurisprudence*, as a general designation of the science, it is not because we are satisfied that it is the most correctly applicable. Its claim to preference is liable to objection ; but as it is the title most familiarly known in our language, we admit it as a designation, about whose conventional meaning there is little or no dispute. For our own part, we should say, that *public*, *political*, or *state medicine* *, would be more appropriate, or at least less exposed to fastidious criticism. We must receive them as synonymous *de jure* with one another, and by custom considered to be so with the first.

These terms we shall therefore use indiscrimiately with reference to the aggregate application of medical science to national purposes ; and would next observe, that this application resolves itself into two very distinct modifications. One of these respects the assistance afforded to the legislature in *framing* laws, and the other to the executive power in their *administration* ; we mean, of course, such laws as regard the public safety in the preservation of the public health, or are designed for the punishment of crimes committed against individual safety, and the adjudication of all disputed points, with regard to the physical interests of the citizen.

The connection between medicine and *legislation* is termed its *police* ; when brought into action by the *executive* power to aid the administration of justice in the public courts, it is styled *forensic*, *judiciary*, or *justiciary medicine*. It is this branch, moreover, that has appropriated to itself the title of *legal medicine* †, to which the other, perhaps, has an equally valid claim.

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* These titles have been all used by good writers to comprise the two great divisions of Forensic Medicine and Medical Police.

† *Fodère's* celebrated work is entitled, " Traité de Médecine Légale *et* d' Hygiène publique, ou de *Police* de Santé," &c. *Mahon's* also is designated, " Médecine Légale *et* Police Mèdicale," &c. Many authors who have written in Latin, use this title, as *Teichmeyer*, whose work is entitled, " Institutiones Medicinæ Legalis, *sive* Forensis." The term *legal medicine* would, perhaps, ill accord with the usage of our language, as its most natural construction would be medicine *according to law*, in contradistinction to that which might be *contrary* to law.

To say that, as the science is yet in its infancy among us, we should not be very solicitous about the accuracy of its designation, might bring upon us the retort, that such is the proper period for introducing correctness of terminology, which, when once adopted, whether right or wrong, cannot easily be rectified afterwards. In such case we should be warranted to observe, by way of rejoinder, that the science has been long enough established to sanction our use of the terms already belonging to it; but we prefer, for the present, expressing the hope, that, in the course of our progress, we may be able to work a little reformation even in this matter, as well as in others of greater consequence.

It is our intention to collect and lay before our readers all the discoveries, novelties, and improvements, that may, from time to time, be presented in either branch of public medicine, —to give accounts of its literature,—and, if we may so express ourselves, of its *transactions*. Under the latter term will be included experimental inquiries, instituted upon whatever occasion, either at home or abroad, aud reports of trials relating to medical facts, and dependent upon medical testimony. We shall thus have ample opportunity of enlarging the resources of the *practitioner*, as well as of helping the *jurist* to settle his opinions on various difficult points; and, for some time, we apprehend occasions will not be wanting, on which it will become our duty to point out errors and rectify misapprehensions.

In the execution of this task, we shall have it also in our power to vindicate the rights of the profession, and probably to advocate the cause of individual members of it, who, from mistakes on the part of the public, and even of public authorities, are sometimes treated ungraciously. Within a short period several instances have occurred in England, where medical witnesses have been publicly, and even severely, rebuked from the judicial bench, for giving such evidence as it was their duty to give, because certain preconceived ideas, of a contrary nature, had taken possession of the judge's mind, derived, it is true, from what was once considered good medical authority, but which the industry of later times has shewn to be at variance with the truth.

PART III.

MEDICAL INTELLIGENCE, FOREIGN AND DOMESTIC.

I. PRACTICE OF MEDICINE.

ART. XXXI.—*Case of Catalepsy.*—Drawn up by MM. L. VYAU DE LAGARDE *et* LENORMAND.

General Symptoms.—The patient (a female) 16 years of age; nostalgia; fever, with obstinate constipation; chorea; trismus; catalepsy; somnambulism; abundant alvine evacuations; extraordinary flow of urine; return of febrile symptoms; convalescence.

Mademoiselle De * * *, was born at Lisle, in 1809, and inhabited, during her infancy, sometimes the city, sometimes the country; the last of which she loved most. Here she gave herself up, with pleasure, to walking, to running about, and especially to gardening. Her parents seemed to have transmitted to her the good health which they enjoyed themselves: and, in the midst of all the enjoyment which a large fortune could procure, she spent a happy time. She was subject to some slight catarrhal affections, and to frequent epigastralgia, with constipation, but not sufficiently severe to take away her gaiety, or to excite, in a particular manner, the attention of her parents. She had then reached her fifteenth year, at which period the menstrual discharge commenced, without any untoward circumstance accompanying it; having taken place three times, always with the same facility, and then returning no more. This young female was then of a delicate constitution, of a nervous and irritable temperament. Her stature was small; her form sufficiently well developed; her hair was very light; and her skin fair and delicate. In her general character she was cunning, yet mild and engaging. She had a forward, quick, and observing mind.

Her parents carried her to Paris, to place her in a boarding school, where her sister was. Being entered there in the beginning of the month of June 1824, she had almost immediately a catarrhal fever, which obliged her to quit it. Being soon convalescent, she re-entered the school, the 23d of the same month, with lively grief at quitting her family, and regretting bitterly the change in the mode of life to which she had been accustomed, and which, till then, had constituted her happiness. Nothing could alleviate her regret, and she soon became truly nostalgic. The pains in the stomach were more frequent and strong; she wished no longer to eat but in concealment,—stealing the food that she refused when offered to her. The society of her sister, and of her companions, could no longer amuse or divert her, and she fled from them, in order to go and weep alone, in some bye-place where she could read over the letters of her parents, to whom she did not wish, however, to make known her ennui, from the fear of afflicting them.

On the 29th November 1824, after six days of watchfulness, fever came on, with some inflammatory appearances, and symptoms of inquietude. It was combated by a regimen which consisted of diluting drinks, chicken water, dog-grass, and infusion of marsh-mallows; also by ipecacuana, and various applications of leeches. Calomel, given in grains, subdued the constipation which existed at the commencement.

This febrile state lasted about three weeks, and then disappeared completely. But, soon after, in the course of the fourth week, a new constipation supervened, along with a difficulty in taking aliment. *Lavements* of bran-water, cassia, beet, and at last of castor oil, were uselessly employed; and while they were used, in the course of the fifth week, spasmodic choreiform symptoms appeared. The head, the arms, and the legs, were in an almost continual motion, sensibly more strong on the left side; while the patient complained much of a dull and deep pain seated in the whole breast; and, above all, in the sternum. These symptoms lasted many days.

Towards the 1st January 1825, the agitation began to diminish. It soon returned no more, except by intervals, and was replaced by a violent trismus, accompanied by a fixed and nearly permanent contraction of the muscles of deglutition. It was then impossible to introduce any aliment by the mouth. A contrivance was, however, resorted to for opening the jaws, by making use of wooden levers, cut in the form of wedges, which succeeded, though not without many precautions and difficulties. By the help of these means, an attempt was made to force upon her some nourishing drinks, such as broth, asses milk, and panada, which were poured into her mouth with a small spoon, or with a little syringe, fixed in a probe of Indian rubber, that was introduced, through the medium of the mouth, or else by the nasal fossa, to the commencement of the esophagus. Succeeding still very indifferently by this method, liquids were injected by the mouth and by the nose, without the sound. But, with all this, in spite of the efforts of the patient, and the perseverance of the physician, her attendants could, with difficulty, in the space of eight or ten days, force but a very few drops of liquid into the stomach.

Some days after the appearance of the trismus, there became joined to it a sort of anæsthesia, which, at first, during its various attacks, lasted some hours, and afterwards finished, by occupying even a portion of the day and night. It was characterized by the following symptoms.—Perfect immobility; and, for a moment, a marked stiffness of the whole body, and especially of the left side; eyelids closed, and immovable; eyes turned upwards; pupils not dilated; expression of the countenance very natural, only the left commissure of the lips sometimes drawn up; pulse weak and easily depressed; skin alternately very hot or very cold; insensibility complete and general; loss of all the senses, except that of hearing,—the patient listening to all that was said around her, without power to give any sign of it. On recovering from this state, she only complained of having felt, and continuing to feel, a sharp pain under the sternum, disappearing, in part, by strong pressure, and observing distinct paroxysms, as the stiffness of the body, and contractions of the lips, seemed to indicate. She endeavoured to speak, in spite of the contraction of her jaws, which continued; weeping, consoling her parents, and struggling to second, as well as she could, all the means employed to make her drink.

During the whole time that this state lasted, affusions of water, at 17° or 18° therm. Reaum., were made upon the head and upon the breast. They procured her a remarkable relief, but it was momentary. In order to combat the trismus, the masseter, the temporal muscles, and those of deglutition, were excited; plates of magnetized steel were applied to them, these being allowed to remain two days. A blister was put upon the nape of the neck. Fomentations were applied to the region of the stomach and of the heart, along with a decoction of poppy heads, and six grains of antimonial tartar. All these methods produced no effect; some nausea only was remarked. She was nourished with injections of broth.

All this took place during the fifth and sixth week;—in the course of the seventh, some changes occurred. The patient no longer heard, with distinctness, what was done around her; her limbs began to retain, although feebly, the positions which were given to them; and, at the end of some days, the catalepsy was complete. The following state presented itself:—General immobility of the body; the superior and inferior extremities, the head and the trunk, taking all the positions that were given to them, and preserving these even though they might be the most difficult ones, until the attendants caused

them to be changed; the trismus, however, more slight, but not completely disappearing; a total loss of sensation and motion; a suspension of the functions of all the senses, including those of hearing; upper eyelids always depressed, but, notwithstanding, often winking; eyes turned up; visage natural, sometimes, however, jerkings of the left commissure of the lips; the physiognomy calm; the temperature of the skin variable, passing sometimes from a degree of heat sufficiently well marked, to an icy cold; pulse sometimes more, sometimes less frequent, than in the natural state; respiration slow, and at some moments nearly insensible.

This catalepsy assumed, at first, during some days, a very exact periodicity. It began at four o'clock in the evening, and lasted until half past ten. During the remainder of the time, she had pains in the stomach, which were singularly augmented by broths, meat jellies, or milk, that were introduced, although in very small quantities. On the 14th January, it was judged that Mademoiselle * * * was in a state fit to be removed to the hotel of her parents, where she desired much to go. She found herself well in the carriage, and requested to be driven there, as soon as it was thought proper. Nevertheless, the catalepsy returned in the evening, at four o'clock, as on the other days, and lasted the same time. An attempt was made to check it by many methods,—as by tickling the soles of the feet, by percussion, and by different external stimulants. Aspersions and lotions of cold water, applied to the face, recalled a little her recollection, and slightly diminished the cataleptic stiffness. The pains in the stomach were then more lively; a feeling of suffocation was joined to them; and the spasm returned as soon as the attendants ceased to employ disturbing means. The attacks were always longer when an endeavour was made to interrupt them; and this effort to break them off was more painful than when naturally made.

The patient strongly desired to have a blister on the arm. An application was accordingly made, to satisfyher; yet the catalepsy became, no less, nearly habitual. Drives in a carriage were tried; these procured an amelioration that was scarcely perceptible, and it was very momentary. All this took place up to the ninth week. Few opportunities occurred in which the patient could be made to take some drops of broth, which always augmented the pains in the stomach, and immediately brought back the catalepsy.

During this interval, the magistery of bismuth, perfectly pulverized, was administered in a dose of 8 grains, combined, at first, with syrup of gum, and afterwards with powdered charcoal of light wood. At the end of two days this method was abandoned;—it was without effect. The periodicity of the attack induced the physicians to try bark. At first it was given in syrup, and appeared to be of some advantage. The sulphate of quinine was next employed. Six grains of this substance, taken in three doses, caused irritation of the stomach; it was then administered in the form of injections and friction. No result was obtained from it.

On the 27th January, at six o'clock in the evening, during the catalepsy, there took place convulsive motions. The arms were thrown abruptly out of the bed; the face expressed pain; the eyes were wide open, and directed convulsively towards the arch of the socket. The jaw lowered and raised itself alternately; there was froth in the mouth; the left commissure of the lips was violently drawn. Afterwards, the patient began to sing during nearly a minute, and then recommenced at the end of half an hour. During the night, the choreiform agitation of the head returned; and, for the first time, very marked natural movements took place during the spasm.

On the 28th and 29th January, at the same hour, the same phenomena presented themselves.

On the following day, the patient shewed a sort of somnambulism. Mademoiselle de * * * sang many known airs, spoke, made motions during her catalepsy, the paroxysms of which were less long; and, when she had got out of them, she did not, any more than on the preceding days, remember any thing of what had passed. She complained much of pains in the stomach, which suggested the application of two blisters on each side of the spinal apophyses of the first dorsal vertebra; and of a plaster of antimonial *pomade*

upon the epigastrium. This took place on the 1st February. This last ointment, although spread very thin, caused short pains, convulsions, and screams.

From the 2d to the 15th February.—The eruption produced on the epigastrium by the antimonial *pomade* was accompanied during eight days with a feeling of smarting, and of insupportable prickings, in spite of lotions, consisting of a decoction of marsh mallow roots and poppy heads. The catalepsy, which was always announced by the same pangs, and by a sensation of stifling, returned regularly at the same hour every evening, and lasted the entire night, with the exception of some slight interruptions and movements. During the day it alternated with pains in the limbs; and, more particularly, in the chest. The sinking down, the annihilation, the depression, were at their height. The patient pronounced but a few words, hardly intelligible, and in a voice almost extinct. She had a despairing indifference for food and for drink, taking, in twenty-four hours, hardly six ounces of liquid, and finding herself ill whenever she was moved, however little it might be, or whenever she heard a noise rather loud. Sometimes, during her spasm, she was all at once assailed by imaginary terror, which made her utter cries, and call for help. At the same time, during three days, there was a marked rigidity of the whole of the left side; existing also in the right, but in a less degree.

To this state succeeded another, which was a perfect calm rather than a sinking down. The pulse was raised, and was now only a little weak.

From the date of the 15th February, the catalepsy had, for its precursory symptoms, no more pangs, but a feeling of universal cold, which was very great, whilst the heat was natural to the touch. The paroxysms were longer. In their intervals, the same pains, the same stiffness of the muscles, always more sensible on the left side, the same symptoms, in short, subsisted as formerly.

16th February.—For a long time the patient had no stools, notwithstanding the lavements of broth which were frequently administered, three or four a-day. In the night of the 16th or 17th, during the catalepsy, an alvine evacuation, of abundant matter, and of the ordinary consistence, took place. It was accompanied by cries, without apparent efforts of defecation, and followed by tremblings, which, from the head, influenced the superior extremities, and lasted more than a quarter of an hour.

From the 19th February to the 10th March, the catalepsy progressively increasing, became almost continued, and so complete, that the patient, when raised from her bed in such a manner that the trunk formed with the horizontal plane an angle of 40°, preserved this position, as well as all other intermediate ones, with a perfect equilibrium, nearly as complete as would an image on springs;—she was like soft wax, which takes all the figures we might desire to impress upon it, and retains them externally to the last. However, when out of this state her weakness was extreme. In the course of the attack she executed some movements, and uttered some cries. Her feet were alternately very cold and very hot; notwithstanding, she appeared to be most incommoded by the heat, for she continually tried to rid herself of her coverings: and, on recovering, her first words were always "I am hot,—I am stifled." From the difficulty of nourishing her, she was reduced to the greatest state of emaciation. The pulse was weak. She had nausea, and even vomiting;—some drops of blood ran from the nose.

Her attendants made her take by the mouth, as well as they could, some drops of nourishing liquid, but injected broths still formed the greatest part of the nourishment. The internal medicines were limited to syrup of bark, which had been suspended for some time; it was administered by spoonfuls, and seemed to soften the epigastric pains. Soon after, the powder of charcoal, as a fixed tonic, was combined with it. New frictions of the abdomen, made with the sulphate of quinine, during some days, gave no ease, although they were aided by cataplasms, sprinkled over with bark, in powder, and applied upon the breast.

As, during nineteen days, the patient had not had any alvine evacuations, a *lavement* of pulp of cassia was given her. It had no effect. A second was

then administered; upon which, almost immediately, the patient felt violent twistings, and two hours afterwards, in a convulsive agitation, she parted with feces of a greyish colour, voluminous and abundant. She remained during twenty minutes in these convulsions, sufficiently violent to force her out of bed, had she not been held in it; after which she again fell into a catalepsy, and remained in it all the day in a perfect state of immobility. At the beginning of the night, a new nervous attack, nearly as violent as before, came on, accompanied by cries, and a sense of stifling; the catalepsy supervened, and the calm was re-established.

But soon certain appearances of dissimulation were detected in the patient;—she served herself sufficiently freely with her hands, when she believed herself not to be seen, but as soon as her attendants approached her bed she fell again into a perfect catalepsy. MM. Recamier and Laennec ascertained more than once the truth of this state, which they believed to be affected. As for the rest, this return of the primitive character of the young lady, in which had been remarked much cunning, announced an approaching change in her physical state, for, from the 10th of March, the catalepsy was less and less profound, and observed longer intervals.

As it was now evident that the spasm was less complete, the patient hearing at intervals what was said to her, and even laughing, it was believed, without any reason for the suspicion, that she brought on this state by her own humours. Attempts were then made to again try cold affusions upon the face. This immediately caused the spasm to cease, and the particular stiffness which accompanied it; the patient cried out, became impatient, greatly agitated herself, finished at last by granting what was wished of her, namely, to shew her tongue, and then, soon after the affusion, relapsed. Every time that these means were repeated they had the same effect. The attacks became longer and accompanied by fever. This treatment was then abandoned, nor was any result obtained from the impression of cold air.

One day, on the 13th March, while she was in a state of complete cataleptic immobility, an organ, which was heard in the street, drew her from it suddenly. She carried with vivacity her hands to her ears, moving herself, and crying with volubility, "*The music! the music! ah, how beautiful the music is!*" It is proper to remark, that she had never before shewn for this art a taste well marked. Gay airs alone seemed to give her pleasure; if they became mournful she no longer appeared to hear them, and relapsed immediately. Some advantage was attempted to be drawn from this circumstance; but no other mark of sensibility could be obtained by this means.

At the end of some days, the fever disappeared almost completely; the patient regained her good humour. She felt the want of aliment, and took some even during her spasm. It consisted of sweetmeats, jellies, and broths. She had a fancy to eat fresh butter, and, during many days, swallowed a quarter of a pound a-day, with the intention, as she said, of bringing on the desire to vomit, which she felt, was ceasing.

She began about this time to complain much of thirst, and of a painful sensation of internal heat. The urinary discharges became abundant; their emission was difficult and painful. On the 18th March she had three successive stools of solid green matter, very abundant, which were succeeded and accompanied by griping pains.

The catalepsy now became more and more slight; for during this state the patient heard what was said to her, laughed, and shewed her tongue when her attendants requested her. There existed, speaking correctly, only a half state of catalepsy, characterised merely by a very slight stiffness of the limbs, and their faculty of preserving, with a perfect immobility, all the attitudes which were given to them. This evidently could not be voluntary on the part of the patient, considering her great debility,—a remarkable circumstance. This state returned every day at regular and perfectly determinate hours. It ceased in the morning at half past 8 o'clock, returning afterwards from half past 12 to half past 3; from half past 4 to three quarters past 6; from three quarters past 7 to three quarters past 10; and, lastly, from three quarters past 11 to half past 8 o'clock in the morning. All this to a minute,

without the patient having any knowledge of the hour by which she could be accessary to the cataleptic state.

The periodicity thus lasted, without being once inconsistent, until the 30th March. On coming out of this bad sleep (for this is the name which the patient gave to her cataleptic state), she complained of uneasiness, of a sense of stifling, and asked to breathe the open air. Of all the intervals of the attacks, it was in that of the morning when she found herself the best, and took the most willingly aliment, and above all, drinks, for she was tormented by an almost unextinguishable thirst. The quantity of the urinary discharges had greatly augmented *: it was more than four pints a-day; whilst that of the drink made but one, or near it. Those which were made during the spasm had a natural colour; but out of it they were light, transparent, and discoloured like water. The pulse had become hard, and had taken on the nervous character. As for other circumstances, the patient's thinness was sensibly diminishing, her gaiety was returning, until at length she began to speak, in a low voice, "It is true." Nevertheless, there was every evening a slight febrile movement, with agitation, and wandering pain.

From the 22d to the 30th March, she had every night, at the same hour, a solid dejection, announced commonly by very lively colics. On the 14th, some drops of blood ran from the nose, the catalepsy continuing always to grow weaker, and being scarcely even evident any longer. The flow of urine began also to diminish.

On the 30th, the nervous state seemed to augment a little, and there was joined to it a fever, preceded by an uneasiness, which commenced at noon, and continued increasing all night until 4 o'clock in the morning. The urinary discharges became also as abundant as formerly; the thirst was felt more intense; there were continual yawnings, and, in the night, above all, wandering and internal pains drew forth cries from the patient.

On the 1st April, the day was worse than the evening before; the abdominary pains always increasing, being followed by agitation, cries, extreme anxiety, and at last abundant alvine liquid evacuations, which commenced at 9 o'clock in the evening precisely, at the same time that vomiting took place of slimy matters. These evacuations, upwards and downwards, occurred nearly without ceasing until 1 o'clock in the morning. Then all appeared to become calm. The catalepsy supervened. At 4 o'clock the patient had again a more consistent stool, and nearly without pain. The spasm was hardly interrupted, and lasted till 8 o'clock in the morning. On coming out of it the patient found herself in a state of calm and marked recovery. At the end of some moments she felt the want of repose, and enjoyed for an hour a true sleep.

2*d April*.—This day was very good; the spasm did not return at noon as customary. The flow of urine began sensibly to diminish; but pains were always felt in the belly. Many lavements, with the decoction of poppy heads, were administered; poppy water sugared was given as a drink. An emollient cataplasm was applied to the belly.

At this time the aliments only consisted of asses milk, broth, a little of the white meat of roasted fowl, &c.

On the following days, the patient had many yawnings, with a return of the catalepsy, which by degrees confounded itself with the natural sleep, but was always accompanied with fever, a slight agitation, and at times præcordial pangs. Every morning, at the same hour, there were three successive dejections. As for other symptoms, the thinness visibly disappeared; gaiety and strength were regained.

On the 11th, this state lasted; a warm bath was given her, which did not produce a good effect. The pains under the sternum, which had nearly ceased, returned; and during some days there remained a great disposition to fainting. On the 21st all these symptoms had disappeared; the patient could

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* According to the analysis of M. Caventou, the proportion of urea was greater than in common urine.

not yet walk, but she began to bear the motion of a carriage. She soon was in full convalescence; and set off, on the 4th of May, to return to her province. The menses had not reappeared.

ART. XXXII.—*Mode of obviating the Bite of Venomous Animals.*—From the Journal de Debats.

DR BARRY had announced, 1st, That the application of a cupping glass to a poisoned wound would be opposed to all absorption of the poison; 2dly, That when even the poison had already been absorbed in part, a cupping glass applied upon the wound would suspend the melancholy effects of it, by bringing back to the surface a part of that which might have found its way already into the vessels. According to Dr Barry, these two facts confirm his theory, even furnishing a complete demonstration of it. The commissioners having repeated anew these experiments, have again found them perfectly correct, conceiving it to be more and more demonstrable, that the application of a cupping glass upon a poisoned wound, is, even in case the effect on which it operates should have already commenced,—an excellent remedy.

On the 29th September, Dr Barry exposed a rabbit to the bite of a viper, and two minutes and a half afterwards a cupping glass was applied. All the consequences were suddenly prevented. A second rabbit, much stronger than the preceding, and appearing in better health, was bit an hour afterwards. No use was made of the cupping glass, and the symptoms of poisoning manifested themselves with great intensity. The animal, however, did not die, which might be principally attributed to its having been the object of a second bite only. From these last experiments, in which the most active poisons have been employed, it has been concluded by the commissioners who were appointed to make a report on these experiments, that the most advantageous therapeutic results may be expected from the discovery of Dr Barry, and that it is of importance to call the attention of medical men, and of the public, to the use that may be made of it, particularly against the bite of venomous serpents, and of enraged animals.

II. ANATOMY (HUMAN).

ART. XXXIII.—*The Discovery of Canals in the Nerves.* By M. BOGROS.—From the Nouveau Bulletin des Sciences par la Societé Philomatique de Paris.

THE researches of M. Bogros, the results of which he has submitted to the Academy of Sciences, have proved that all the filaments which compose the area of the section of a nerve, whether they consist of the nerves of animal life, or of the great sympathetic, are hollowed in their centre, by one or more canals, permeable to injection.

All that we know most remarkable relative to the structure of these organs, reduces itself, in general, to the description that Reil has given. In one experiment which this able anatomist has made, he stripped of all its neurilema a fasciculus of nerves, by submitting it to the action of nitric acid, diluted with water. He then shewed, that the nerve from which the neurilema had been thus removed, is formed of an assemblage of medullary filaments, frequently anastomosed. In another experiment, he took away the medullary pulp that each nervous filament contained, by macerating a nervous cord in an alkaline solution; and, by this means, he endeavoured to prove, that the neurilema forms, in each nervous filament, a fibrous canal, filled with medullary substance, and capable of being injected when it has been thus stripped of its medullary pulp. It is after this manner, that he succeeded in introducing mercury into the optic nerves, and into some very short portions of some other nerves, such as the lingual, the median, &c.

M. Bogros has had occasion to repeat these experiments of Reil, a very great number of times, and at intervals; and he is convinced, by other experiments which are peculiarly his own, that every nervous filament is perforated by canals susceptible of being injected, without making them undergo any preliminary preparation, and that these canals are permeable to injection, during life, as well as after the death of the animal.

For this purpose, he makes use of a long tube of glass, bent at its inferior extremity, to which is fitted another small tube, susceptible of being wire-drawn, by the flame of a wax-candle, to a capillary point; and, when once the instrument, thus constructed, is filled with mercury, he introduces its capillary point into a filament; and hardly has it arrived in the interior of a nervous canal, than the injection runs through it with a rapidity equal to that which it uses in running through a lymphatic vessel. However, after the injected liquid has thus travelled through the extent of some inches, in one or many canals, the force which moves it is no longer sufficient to make it penetrate farther forward: it is then necessary to exercise upon the coats of the nerves slight frictions, in order to make the injection advance.

By the aid of these precautions, M. Bogros has succeeded in injecting nervous ramifications of an extreme tenuity, whether they occur among muscles or in different other organs.

In the same manner, he has injected the nervous cords of the great sympathetic, their ganglions, as well as the intervertebral ganglions. All these ganglions have the common character of being formed by a substance of a reddish-grey colour, which is hollowed out into a multitude of tortuous canals that are interlaced, which communicate with the canals of the nerves that divide them, and even with the venous radicles which belong to them. The intervertebral ganglions are, above all, remarkable in this, that the prolongations of the dura mater, which envelope them, contain, between the fibrous laminæ which enter into their structure, a spongy or erectile tissue, the areolæ of which communicate, on the one hand, with the nervous canals of the ganglions, and, on the other, with the vertebral veins.

However, we ought to remark, that M. Bogros has not been able to succeed in an injection either into the radicles composing the roots of the nerves, which form the intervertebral ganglions, or into the substance of the spinal marrow, or in that of its cerebral prolongations. The injected liquor only arrives near the roots of the nerves, and penetrates into the cavity of the dura mater.

After the explanation that we have just given, a question presents itself, Does the nervous canal of the nerves of animal life exist in the neurilema, or rather in the medullary pulp? To be able to reply to this question, and to dissipate the doubts existing on this point, it is necessary to submit a nervous fasciculus to the action of nitric acid, and to macerate it afterwards for many days in water. All the neurilema which enters into its composition will be then found to be converted into a gelatinous and transparent substance; and, in this state, we see evidently that each nervous cord or fasciculus results from a collection of medullary filaments, frequently anastomosed together. It is likewise in the interior of each of these filaments, thus hollowed out into one or more nervous canals, that we can succeed in our injections, as long as their coats offer, in the slightest degree, sufficient strength to sustain the weight of the mercury introduced there. The medullary pulp does not appear to be of indispensable necessity in the nervous canals. It is very difficult to prove its existence in the last ramifications of the nerves of animal life, although, at the same time, they possess, in no less a degree, a canal permeable to injection. There are even nerves of the great sympathetic composed of one single and uniform substance.

The above process and results are now under further examination, by order of the Academy of Sciences.

COMPARATIVE ANATOMY.

ART. XXXIV.—*Abstract of some Observations on the Anatomy and Physiology of the Alligator of North America. Lacerta Alligator*, GMEL., *Crocodilus Lucius*, CUVIER.—Communicated to the American Philosophical Society, by N. M. HENTZ, Member of the Academy of Natural Sciences of Philadelphia.

[*The writer, after stating that his dissections of the Alligator differ materially from* CUVIER'S *description, then gives the result of his own experience, which we abstract.*—ED.]

THE heart, in the alligator, is placed in the centre of the thorax, exactly under the middle of the sternum. It occupies a large space between the two lobes of the liver and the lungs. The heart itself, however, is not as large as might be expected from the mere inspection of it, when contained in the pericardium: the arterial tubes, nearly as bulky as the auricles and ventricles together, fill a great space in the pericardium, which contains, besides, a large quantity of lubricating fluid. The parts composing this organ are two auricles, two very distinct ventricles, a set of veins from the body, the pulmonary artery, two veins of the same name, a branch for the aorta on the left, another for the right side, the right subclavian, and the carotid artery. I shall now describe these parts, beginning with the veins returning from the body.

The vena cava descendens follows, for a time, the right subclavian artery. It enters the upper part of the pericardium, and is attached to the inner coat of this membrane, until it joins the vena cava ascendens, opposite to the right auricle, where they unite. This vein runs along the right side of the vertebræ, until it reaches the inner and lower part of the large lobe of the liver: there it enters this organ, running in a perfectly straight channel, formed near the edge of this viscus, receiving from it a great number of veins, and comes out a little above the gall-bladder, where, along with four or five *venæ hepaticæ*, it enters directly the pericardium. This is closely attached to the liver, as M. Cuvier observes, but more so in that part than any other. There is another vein bringing the blood from the left axilla, which pierces the pericardium near and above the left pulmonary vein, and enters the *sinus venosus*. This vein is analogous to the left subclavian (of the human subject), differing only from this, in its entering the right auricle *separately*. This, and several important observations, I owe to Dr Harlan, who has examined the heart with me. These three veins empty themselves into the right auricle, which, rather larger than the left, is situated above and on the right side of the heart. The right ventricle, very muscular, has, like the left, thick parietes; it extends a little lower than the other, and is rather more spacious; it is furnished with two large valves, situated near the orifice of the auricle, to prevent the return of the blood. This ventricle has an opening into two arterial tubes; one on the left and superior part is furnished with two semilunar valves opposed to each other, and opens into the splanchnic or left aorta, At this place, the partition between the two ventricles is not as thick as below, but there is a cartilaginous septum, which is so placed as to divide and give elasticity to the orifice of the pulmonary artery, and the splanchnic or left aorta. I have endeavoured in vain to find here a direct communication with the left ventricle. The pulmonary veins pass under the *bronchia*, and pierce the pericardium behind; they then unite, and enter the left auricle, which is placed on the upper and posterior part of the base of the heart. The left ventricle is situated partly behind the other; it extends a little higher, and seems to be rather smaller; it is furnished, like the other, with two valves, placed before the orifice of the auricle; it has also an opening into two arterial tubes; the first leads into the left or splanchnic aorta, and is only separated from the orifice of the right ventricle into the same artery, by the car-

tilaginous partition: it is bordered by a valve, which nearly closes it, so that a very small quantity of blood only is allowed to pass from this ventricle through the opening. The other passage for the blood is placed above; this arterial tube divides into *three* branches,—one which forms the right or systemic aorta,—another forming the right subclavian,—and a third the carotid artery, which at first inclines on the left side, sends a branch, which is the left subclavian; and, previous to its entering the cranium, divides into two branches. This common tube, together with the left aorta, and the canal for the pulmonary arteries, is united, and forms a large arterial sac, situated above the heart, which is enclosed within the pericardium: the arteries divide into branches as they pierce through this sac. These three canals, above the ventricles, and before leaving the pericardium, are extremely enlarged, and form wide bags, capable of containing more blood than all the cavities of the heart together. Such I always found the structure of the heart in the alligator.

Thus the blood coming from the body is introduced into the right auricle; from this cell it flows into the right ventricle, which propels it into the pulmonary artery, and partly into the left aorta. On the other side, the pulmonary veins bring the blood from the lungs into the left auricle, which discharges it into the ventricle of the same side; from thence it is propelled into the right aorta, the right subclavian, and the carotid artery. It appears that the circulation goes on in this manner, whilst the animal is allowed to breathe; but when it is confined under water, when the lungs have ceased, in part, to perform their office, the right ventricle must send a greater quantity of blood into the left aorta, which becomes filled with an increase of the fluid; the weight and pressure must act on the valve, which, as I have already observed, allows but a very small quantity (if any) of the blood coming from the left ventricle to penetrate into the left aorta.

M. Cuvier describes the ventricle as being *divided into three cells, communicating with each other by many orifices.* I have proved, if my observations are correct, that there are two ventricles, very distinct, and having no manner of communication from one to the other through their partition; only nature has placed a large arterial tube (the left or splanchnic aorta), which has a communication with the right or systemic aorta, and which, being capable of great distention, when filled with the fluid, empties part of its contents into the right aorta.

This structure, which M. Cuvier thinks analogous to that in the cheloniens, differs essentially from it. In turtles, a mixture of arterial and veinous blood takes place in the ventricle; whilst in the alligator, when the left aorta becomes much distended with blood, which must be the case when the animal is under water, this artery may supply the left ventricle with part of its contents, but the two semilunar valves placed at the orifice of the right ventricle into this tube, prevent the introduction of any part of the fluid into it from the arterial canal; so that the lungs never receive blood which has not passed through the system. Moreover, when the animal is exposed to the atmosphere, when the lungs receiving the regenerating element, allow the veinous blood to flow towards these organs, both ventricles must receive an equal proportion of the fluid; the right aorta receives a greater quantity, and the left aorta must cease to be distended with a surplus of blood, whilst that part of it contained in the left ventricle must act upon the valve placed before the orifice leading to this same left aorta, and thus prevent the flowing of the blood from that artery. In this state, the other arteries are supplied with nearly pure blood. Such is the result of my observations. It appears that M. Cuvier, whose anatomical knowledge is well known, has dissected only a small alligator, which was sent alive from the West Indies, which, though it died on the passage, arrived in time to be examined. Youth, disease, and several other causes, may have rendered this body an unfit subject to examine, with certainty, those organs; which I have dissected several times in large animals, soon after their being deprived of life.

In the alligator, the muscles are not very numerous, but extremely large in general, and strong; those of an animal killed as it has just left its winter

retreat, are white and flaccid; they stand several days in the open air without any alteration, whilst the muscles of one killed in the summer, are red, more firm, and resemble those of any animal with double circulation, except in their great contractile power after apparent death. I shall enumerate those muscles which are most conspicuous. On the thorax, there is an extensive pectoral muscle, covering nearly all the ribs, and inserted on the humerus; there is above a flat and long muscle extending from the sternum to the lower jaw by one fasciculus, and to the larynx by another; one extending from the clavicle to the larynx; another arising from the *os hyoides*, covering the larynx, and ending at the point of the tongue; and at last a smaller muscle, arising from the *os hyoides*, and attached to the lower jaw. These muscles, having connections with the throat, bring down the larynx and the tongue, and probably assist deglutition. The most important muscle of the abdomen is one that arises from the *os pubis;* it passes under the abdominal ribs which have been described by M. Cuvier, and is attached very closely on the anterior surface of the two lobes of the liver; a thin aponeurosis extends farther, and nearly surrounds this organ; the contraction of this muscle must move down the liver, the heart itself, and indeed most of the viscera contained in the abdomen. Fibres from the above mentioned aponeurosis are attached behind the liver to the ribs, forming a sort of diaphragm, or a partition which divides the thoracic from the abdominal viscera. The last which I shall mention, remarkable for its size, arises from the first inferior process of the vertebra over the lungs. As it comes out of the thorax, it all at once grows very thick, and sends, on each side, a tendon which is attached to the first rib; it tapers gradually above, and is inserted into the sphenoid bone; it appears to me to be an antagonist to the muscles of the neck. The lower muscle of the tail is inserted on the pelvis, and to the femur by a tendon on each side. The *intestinal canal* is not very large; the esophagus is extremely thick, and capable of great distension; the stomach has a rounded oblong form; on the right side, close by the orifice of the esophagus, is that of the duodenum. This intestine, near the end of its second turn, receives the duct of the gall-bladder. Near the end of the rectum, on each side, are two *intestina ceca;* they at first take a direct course upwards; above they lie in a vermiform position, fixed by a folding of the mesentery.

I always found the stomach empty, with the exception of some gravel and a few small pieces of wood. It is generally believed in Carolina, that the alligators swallow a piece of the resinous knot of the pine tree, before they retire to their winter retreat. A glass stopper has been found in the stomach of one, which had assumed a round form.

On each side of the anus there is a gland, which contains a thick yellow fluid, having a strong smell of musk; but this smell is perceptible in every part of the body, in old animals. M. Cuvier *(Règne Animal)* states, that, on each side of the throat there is the orifice of such a gland: on dissecting this part, I found a small bag having an opening near the lower jaw; it contained some particles of sand; towards the bottom of this bag, there is a white glandular substance, which, when opened, presents no cavity discernible by the naked eye, and is destitute of smell; the fore extremity of this is terminated by a similar substance, in the form of a cord, which is attached to the extremity of the cornu of the *os hyoides*. Several gentlemen informed me that when the animal is wounded or angry, he contracts the lower muscles of the neck, and the two bags protrude. I have not been able to discover the use of these organs. It has been said, that, in the alligators and turtles, the heart beats for a long period after being extracted from the body; for my part, although I dissected the animals immediately after they were killed, nay, whilst their limbs still preserved a sort of involuntary motion, I always found that the heart had entirely ceased to contract.

I cannot close my remarks without mentioning a circumstance which I am unable to explain:—Whilst dissecting these animals, I often found small bags, apparently formed by the cellular substance; they contained a black residuum, and some fine gravel: in one of them I discovered the elytrum of an insect of the genus *Dytiscus*, well preserved. There was no connection with the surrounding parts, and no cicatrix could be perceived in the skin near them;

I even found one of these bags under the sternum. I leave it to future observation to explain how they are formed.

This is the amount of observations on this singular animal, during my residence in South Carolina. I regret that it is not more complete. I have endeavoured, however, to make known such facts only as appeared to me to be new, omitting those which are already known.

Since writing the above, I have had an opportunity, in conjunction with Dr Harlan, of minutely dissecting a young alligator. The animal being injected, furnished clearer demonstrations of the correctness of my remarks.

The following is a brief exposition of the result. The mucous coat of the stomach is smooth, without rugæ. About one inch from the pylorus, there is a constriction of the duodenum, forming another pylorus; immediately beyond this, the duodenum forms a loop, in which is found the *pancreas;* through this gland passes the gall duct. There is not the least vestige of the valvulæ conniventes throughout the intestines; but, in place of them are transverse constrictions forming the alimentary canal into numerous cells, which must necessarily impede the progress of the contents. There was no blind gut in this animal.

In this subject, which was 3 feet 10 inches long, the intestines were 5 feet in length.

The spleen lies beneath the duodenum, above the vertebræ. The left aorta, in the abdominal cavity, previous to its visceral divisions, gives off a considerable branch, which communicates with the right descending aorta; the rest divides into several branches distributed to the abdominal viscera.

The bag under the throat, in this young animal, contains a musky substance. *(For the physiology of the alligator, see remarks under Comparative Physiology.)*

ART. XXXV.—*The existence of Nerves in the transparent portion of the Chorion of the Tapir.*

IN the tapir the umbilical chord is connected with the chorion, there being no placenta. Sir Everard Home examined the transparent portion of the chorion, along which the branches of the funis pass before they arrive at the spongy part, and found the nerves in this organ particularly conspicuous. In connection, therefore, with the fact, which he conceives he has established, that nerves exist in the placenta, he likewise concludes, that in those animals in which there is no placenta, a substitution of nerves takes place in the flocculent chorion; "and it is a curious fact," as he adds, "that they should be largest in the latter."

ART. XXXVI.—*The existence of Nerves in the Placenta illustrated in the Seal.*

SIR Everard Home's attention was directed to this inquiry after considering the incubation of the chick, wherein he was led to believe that the arteries were indebted to the nerves for their function. Nor was he induced to abandon this opinion, from the circumstance of the placenta, the bloodvessels of which are very numerous, being suspected to be destitute of nerves. On the contrary, he requested Mr Bauer to employ his microscopical observations to determine this point, and, for the purpose, supplied him with the placenta of a seal, in which the arteries and veins had been injected. As in this animal the umbilical vessels are not twisted, it was expected that the nerves were more exposed. In this inquiry, he conceives, that he has been successful, and accordingly describes the nerves which supply the placenta in the following terms: "They are not," he observes, "continuations of other branches, but form a trellis-work upon the arterial trunks, in a manner totally different from any thing met with either in the ramifications of arteries or veins; and when they are dried upon glass, they reflect the light with a degree of splendour like the human hair, when these are quite white. When the nerves are very minutely examined, each fibre appears to consist of small globules connected with one another."

(Sir Everard Home likewise announces the discovery of nerves in the human placenta. We shall consider his views in our next number.)

ART. XXXVII.—*Upon some points of the Anatomy of the Dromedary, by* M. GUST. HERM. RICHTER.

IN a thesis, entitled *Analecta ad Anatomen Cameli Dromedarii spectantia*, published at Konigsberg last year, M. Richter appears to have studied with care the structure of the dromedary, and particularly of that singular production which the animal is said sometimes to throw from his mouth, when in anger, or in the moment of rutting. The following is the article of M. Richter on this subject :—

" The velum palati descends very low ; it does not show any amygdaloid glands ; but in their place are numerous dimples, many of which are filled with little green stones, that may be compared to salivary calculi.

" Before the velum palati is suspended a membrane 8 inches long by about 4 broad. It seemed formed by two laminæ of the mucous membrane which lines these parts, united by a very compact cellular tissue. In drawing breath, the air penetrates it only by degrees, and by the pressure thus caused, changes it into true cellulosities. On each side of the origin of this membrane, we saw two excavations sufficiently deep to permit the introduction of the two last phalanges of the middle finger. The surface of this membrane was besides covered by a great number of very small foveoli, the orifice of each of which was oblique. Below the mucous membrane in different places, but, above all, at the origin of the duplication, there were muscular fibres, which proved that the dromedary could at will move this duplicature. We observed also some other muscular fibres, but less manifest, and mixed with the cellular tissue between both laminæ of the membrane."

M. Richter thinks, with reason, that this organ is the same as that of which Sir Everard Home speaks in the Life of Hunter. It appears that this is all which had been published on the subject, for M. Blumenbach and M. Carus confine themselves to copying him. Both give to the organ the name of pouch (bursa), probably as Hunter did, but evidently wrongfully. As to its uses, does it not serve to moisten the internal surface of the mouth, as Hunter supposes, or rather for a secretion analogous to that of the mucous foveolus of the palate of birds, as is the opinion of M. Carus ? This M. Richter does not venture to decide. In recording what travellers say upon this organ of the dromedary, among whom are Olearius, Tavernier, Eversman, who have remarked it in some distinct races, and not in others, M. Richter asks, if many species have not been confounded under the same name, since the varieties admitted in the dromedary differ among themselves, not only by their size, colour, the nature of their hair, &c., but, moreover, by their internal organization ? In fact, dromedaries have been seen which had not this pretended pouch, whilst others possessed one that was simple or double. However, to decide the question, it is necessary to inquire beforehand, whether the fact was justly observed by M. Richter or not. Is it not an organ proper to the male sex, which only acquires its full development at adult age, and solely at the period of rutting ?

In the remainder of the organization of this dromedary, M. Richter has observed the *osteide* of the diaphragm, found for the first time for more than a hundred years, by Messerschmidt, and described anew by M. Jaiger and by M. Leuckart ; but he could not observe what this last has described in the left ventricle of the heart, at the root of the aorta, which makes him remark that the one is much more accidental than the other.

ART. XXXVIII.—*The Distribution of the Nerves connected with the Organs of Generation of the Female, as exemplified in the human species, in the Quadruped, the Bird, and the Frog.*

MR Cæsar Hawkins instituted several very interesting inquiries on this subject, which Sir Everard Home, for whom the dissections appear to have been made, has quoted in his paper " On Existence of Nerves in the Placenta." Mr Hawkins's account is as follows :—

"The nerves of the human uterus are supplied from six different plexuses. The spermatic plexus within the abdomen, the great hypogastric plexus between the common iliac arteries, and four within the pelvis, two of which are situated on each side of the uterus. All of these have the peculiar appearance of the sympathetic nerves, and they are intimately connected with all the other nerves of the viscera.

"The uterine nerves in the dog, cat, rabbit, and guinea-pig, so nearly resemble those of the human uterus, that a minute description of them is unnecessary. The spermatic plexus is formed by branches of the renal plexus and two nearest lumbar ganglia of the sympathetic nerve; it supplies the horns of the uterus, the ovaria, and apex of the urinary bladder.

"The common hypogastric plexus, after having supplied the body of the uterus, gives off a large nerve of considerable length, which dips down into the pelvis, and unites with numerous branches of the third sacral nerve, and smaller branches from the second and fourth; a remarkable plexus is thus formed, which contains several distinct ganglia. It distributes nerves to the body of the uterus, the vagina, bladder, and rectum, the integuments of the upper part of the pubes, and the muscles of the inferior outlet of the pelvis. A few branches pass down to communicate with the fourth sacral nerve, where it gives origin to the pudic nerve. These nerves arise from the plexus in such a way as to resemble the ramifications of the venæ vorticosæ in the choroid membrane of the eye.

"The difference, therefore, between the nerves of the human uterus, and those belonging to the uterus in the quadruped, consists in the formation of only one lateral hypogastric plexus, and consequently in the existence of only four nervous centres in the latter. There appears also to be more ganglia in the plexiform distribution of the sympathetic nerve. In the seal, several large ganglia are found in the broad ligaments of the uterus.

"The nerves belonging to the female organs of birds are distributed as follows: The sympathetic nerve is found close to the origin of the spinal nerves, protected by the double heads of the ribs, between which it runs. The spinal nerves that correspond to the lumbar and sacral nerves in quadrupeds emerge near each other; and as the sympathetic nerve communicates with each of them, and forms a ganglion immediately after their appearance from the vertebral foramina, there is an almost uninterrupted ganglion of considerable length; from which numerous filaments go off to supply the oviducts. Others run upwards, and are distributed on the ovaria.

"Near the termination of the oviduct, in the cloaca, a plexus is formed, nearly similar to the lateral hypogastric plexus in quadrupeds, which is distributed in a corresponding manner to the oviduct and cloaca. There is also a similar pudendal nerve.

"Fewer ganglia are formed near the aorta than in quadrupeds, and scarcely any branches are sent from the common hypogastric plexus to the oviduct.

"In the frog, as there is no proper sympathetic nerve: the abdominal viscera are supplied directly from the spinal nerves. These, soon after they emerge from the vertebral canal, become slightly enlarged: this does not deserve to be called a ganglion. From each of the spinal nerves in the lower part of the back and loins, a small nerve is given off, which takes a direction towards the centre of the bodies of the vertebræ, where they unite with each other, and with the corresponding nerves of the opposite side. By this union, a flat nervous web is formed, which stretches across the aorta, and extends downwards into the pelvis: this is analogous to the splanchnic plexus in hot-blooded animals.

"From the upper surface of this plexus many branches run upwards towards the intestines and kidneys, but the greater number are distributed on the ovaria.

"The lumbar nerves on each side give off several branches, which pass at once into the oviduct. The last lumbar nerves pass down upon the surface of the psoæ muscles, and, near the pubes, give off a branch, which takes a cir-

cuitous course towards the lateral portion of the bladder and the extremity of the oviduct. The continuation of the aortic, or abdominal plexus, in union with some branches of the sacral nerves, forms, on each side of the pelvis, a kind of plexus, which distributes branches to the cloaca and lower portion of the oviducts.

" The nerves corresponding with those which have been described in the frog, run almost entirely in straight lines, instead of having the intricate reticulated texture of the visceral nerves in hot-blooded animals. The ganglia are indistinct, and the fibres that compose them resemble those of the muscular, more than the visceral nerves."—*Philos. Trans. of the Royal Society of London for* 1825, page 70.

MORBID ANATOMY.

ART. XXXIX.—*Observations on a singular Alteration of some Human Heads.* By Baron CUVIER. From the Memoires du Museum d'Histoire Naturelle.

Dargenville has represented, coarsely enough, in the seventeenth plate of his Oryctology, a human head of an extraordinary size and thickness, which is at present deposited in the cabinet of our celebrated colleague, M. de Jussieu.

Dargenville considered it as a petrifaction ; whether, says he, it has itself swelled and hardened only in the bosom of the earth, or that, having been softened and puffed up during life, it has afterwards become solid and compact by the penetration of stony juices *.

We find other figures of this head, seen on its different aspects, but still less exact than that of Dargenville, in the Memoirs of Guettard, vol. vi. p. 331, pl. i. and ii.

But the most exact notice we have, is that which M. Jadelot, a celebrated physician of Paris, has published separately in 1799 †, with figures in outline. We find in this paper the description, the weight, the dimensions, and chemical analysis of this singular morceau. The author thinks that it is a monstrosity, and the product of a disease which consists in a softening and swelling of the bones, and that this head owes its density and stony appearance to a calcareous carbonate, which is deposited there after death, and since it has been interred ‡. He thinks, even, that the teeth, which are found enveloped in the thickness of the jaws, have sunk in through the pressure of mastication ||. This well written and minute dissertation of M. Jadelot, has not prevented Mr Edward Stern § from asserting, in 1818, that the head in question can belong only to a gigantic race extinct at the present day, of whom the faculties were greatly inferior to those of the men of the present generation, and to whom this writer attributes, in the mean time, works which suppose some intellectual powers, such as the Stone Henge of Salisbury, and other monuments which pass for Celtic.

The celebrated Dr Wondelstad adopts this opinion of Mr Stern **. He maintains that this head has belonged to a preadamite giant of 13 feet in height; and M. Ballenstedt agrees with these two authors, and makes of this extraordinary morceau a capital argument in favour of his system on the existence of a gigantic race in the primitive world ††. Dr Molle of Nimiguen, Dutch translator of M. Ballenstedt, denies, in truth, that this head is of the

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* Dargenville, Ryet. p. 330.

† Description Anatomique d'une tête humaine extraordinaire, &c. in 8vo. Paris 1799.

‡ Page 26.

|| Page 19.

§ Allgem. Anzeig. 1818, No. ix. p. 86.

** Ibid, No. xxxi.

†† Nouvelle preuve de l'existence des geants dans l'ancien monde, dans les archives des decouvertes relatives au monde primitif,—tome i. pag. 48.

ancient world; and, nevertheless, he believes that it has belonged to a healthy but gigantic man, and of the height of 9 or 10 feet *. In vain has an anatomist of the first order, M. de Sœmmering, returned to the charge, and endeavoured to prove anew, as M. Jadelot had already done, that it was a diseased head; in vain has he supported his reasoning by another similar head, long preserved in the cabinet of the Electoral Cabinet of Bonn, and at present in that of the Grand Duke of Hesse at Darmstadt; of a third, described by M. Jourdain, in his Treatise on the Surgical Diseases of the Mouth †; of a fourth at Cracow, and of several other examples, more or less analogous, from Sandifort, Bailly, Malpighi and Haller. In vain does he tell of a living man that he had seen suffering under a similar disease; and asserts, that M. Wedekind, a physician very well known, died of it.

M. Ballenstedt has, nevertheless, again maintained, that it is the head of a giant of the primitive world ‡.

That which has most astonished me in this long discussion, is, that none of the celebrated men who have taken part in it, have thought of examining what might be the age of this head and of the analogous heads.

Notwithstanding, this is a point so much connected with the principal question, that Dr Molle, among his reasons for proving that this is not a diseased head, alleges, that similar diseases are very rare in adults, but, at the same time, admits, without any other examination, that the present is that of an adult. As to M. Jadelot and M. Sœmmering, I do not find that they have given any opinion upon its age. Having to treat, in my researches on fossil bones, of all which may concern the ancient existence of men on our actual continents before the catastrophe which has overthrown their surface, I thought proper to examine all the facts upon which people have endeavoured to support that existence; and these monstrous heads being especially alleged in its favour, it was natural that I should endeavour to verify what people said of them.

M. Schleyermacher has kindly sent me a cast of the head of Darmstadt, similar to that which M. Sœmmering possesses; and M. de Jussieu, with his ordinary liberality to all those who are engaged in scientific pursuits, has confided to me the actual subject which has given origin to all these disputes. I have the honour of submitting it to the inspection of the Academy.

It is not very well known in what place this head of the cabinet of M. de Jussieu was disinterred. All that is said of it is, that it was 15 feet under ground, in the hills in the neighbourhood of the village of Lacy, two leagues from Rheims; but there is nothing authentic in this report, and we do not know to whom it was made, nor who was witness of the discovery. This uncertainty has greatly contributed to multiply the vague conjectures which have been made on its origin. As to that of Darmstadt, we know for certain that it was found in a place full of bones, at Billerbeck, in the bishopric of Munster, from whence it was sent to Bonn, for the cabinet of the Elector of Cologne, Bishop of Munster; it remained there a very long time, and from thence was transferred to Darmstadt. It is, then, quite certain as to this one, that it is not fossil, and that it belongs to the present race of men.

From the first glance I threw on these two heads, I was struck with several marks which appeared to me to announce that they did not belong to adults; and instantly feeling all that would result from this fact well established, I immediately occupied myself with verifying this first idea.

The age of a head, whatever malformation diseases of the osseous system may have subjected it to, may always be determined within sufficiently narrow limits, by the number and configuration of the teeth.

The reason of it is, that the teeth do not develope themselves like the bones by intussusception, but growing in the manner of shells by juxta-position, and their parts once framed, being no more susceptible, either of inflam-

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* Archives du monde primitif; par Ballenstedt et Krüger, tome ii. p. 314.

† See Jourdain, Maladies chirurgicales de la bouche, tome i.

‡ Voyez la lettre de M. Sœmmering et les remarques de M. Ballenstedt dans les Archives du monde primatif, vol. iii. p. 24. et suiv.

mation or alteration, by an internal principle, all which passes in the interior tissue of bones remains incommunicable to them; in the same way as their peculiar diseases do not affect the bones in an immediate manner. Applying these views to the heads in question, I found in that of Darmstadt the alveoli half filled with teeth on each side, two incisors, one canine, and three molares. In the lower jaw, of which we have only the half, we do not see a cavity alveoli for the third molaris tooth.

This was a principal motive for concluding that the individual was six or seven years old, and that the teeth that had filled the alveoli were its milk teeth.

In effect, it is about the 6th or 7th year that the first permanent molaris appear, and it is at the same time that the milk teeth in front of the jaws fall out to be replaced by the permanent set.

This is what appears to me to be demonstrated by the alveoli of the head of Darmstadt, and I think the teeth themselves in the head of the cabinet of M. de Jussieu confirm it. This head has only six alveoli on each side in both jaws, and even the sixth is wanting in the left side of the upper jaw. Thus, it must be about the same age with that of Darmstadt; but, very fortunately, two of its molares are preserved, the second on the left side of the upper jaw, and the second on the right of the lower.

Now, there was nothing so easy as to determine whether they were milk-teeth or permanent, since the second molaris is of a totally different form in the two dentitions.

In fact, in man, as well as in most quadrupeds, the molares of the first set have more complicated forms, like to those of the back molares, than the teeth which ought to succeed them, and the object of this difference is very easy to comprehend; it is, that as long as there are any of the back molares to come, it belongs to the molares of the first set to fulfil their functions.

Thus, in man, in the upper jaw, the first molares of the first set has a strong tubercle interiorly, and a crown divided into two lobes exteriorly; and the second four tubercles disposed obliquely; in the lower jaw, the first molaris of the first set has four slightly raised tubercles, and the second five, of which three are exterior and two interior, and each of the latter slightly *bilobed*. In other words, the second molaris of the first set in each jaw resembles the first back molaris, or the permanent tooth which ought to come behind it, and not that which ought to come up from under it, and cause its fall.

These last, the permanent molares, are, in fact, in each jaw what are called bicuspides, or teeth with two large tubercles, one interiorly and one exteriorly; the tubercles of the lower jaw are only a little more indented or furrowed than those of the upper.

The roots of these two sets of teeth are also very different, and always more separated and more numerous in the molares of the first set than in those of the permanent.

By these rules I have examined the teeth and the roots remaining in the head of the cabinet of M. de Jussieu.

The second molaris remaining in the upper jaw, has its four tubercles and crown broken, and we see, by the corresponding alveolus of the opposite side, that it has three separate roots. Now, seeing, though thus complicated, it occupies, nevertheless, the second place, it is incontestibly a molaris of the first set. It is absolutely the same with that which preceded it, and which has also three roots still well marked by their impression in the alveolus; behind it was a third molaris, which is broken, but which has left three roots: it is the first back molaris, or the tooth of the seventh year, and this can be no other than it. In fact, it is only in the seventh year that we can see at once in the upper jaw three molares in succession, each having three roots, for before this age the first back molaris has not yet come; and later, the two molares of the first set are replaced by the bicuspides, which have only one root, or two at the most: in truth, the second back molaris comes afterwards, which has also three roots, but the third, or wisdom tooth, has never any. Thus, as I have said, after the seventh year, or very near, there are only two molares with their roots on each side following one another.

That of the lower jaw has five tubercles, absolutely the same as the second molaris of the first set of that jaw, and they are even a little used; which proves, that the individual has used them for some time. In fact, if this tooth were alone, one might assert, that it is not the second of the first set, but the first of the back molares, for these two teeth have very nearly the same form as we have mentioned above; but this supposition is not allowable, because there would not have been enough of teeth in front. The two hollows placed immediately in front of the tooth *in situ* are not two alveoli, but the place of two roots of the same tooth; and this existence alone, of two roots separated even to the neck, proclaims that this tooth itself was a molaris of the first set, and not a bicuspid.

The canine of this side is broken, and not sunk into the bone, as M. Jadelot thought.

As to the incisor, this idea as to it is still less applicable.

The alveoli of all the incisors are marked, and at their ordinary place; they are half filled up, which proves that the teeth which had occupied them had fallen out.

The tooth which remains enveloped in the thickness of the bone, and close to the inferior surface, has its cutting edge quite entire, and with its notches such as a permanent incisor ought to have. Thus, it has never been used, for then it would have been worn like the molaris remaining in its place.

From this integrity, and from the existence of an alveolus, which is the certain mark of another incisor which had preceded that one, I conclude, that this tooth, far from having been pressed into the softened bone by the pressure of mastication, has, on the contrary, been hindered from coming out by the hardness and thickness of the bone which has opposed an unsurmountable obstacle to its appearance.

The surface of the jaws minutely examined, confirm what the teeth and alveoli proclaim. We see behind the alveoli of the incisions the remains of small holes, which, in the natural state, offer an easy way for the eruption of the permanent incisors; but these small holes are almost entirely obstructed by the swelling of the bones.

There remains also in the upper jaw very marked traces of that fissure, the only vestige in man of the suture, which separates, in almost all animals, the incisor from the maxillary bone. The remains of this fissure is important to us, because it unequivocally marks the place of the canine, and because it clearly demonstrates to us that the tooth placed behind it, or the first molaris, had three roots, and that in consequence it was a molaris of the first set.

If I do not deceive myself, all these circumstances coincide in proving to us, that the heads that we are examining are the heads of infants who have died at the time of changing their teeth, and in whom this change could not be accomplished.

That being determined, we shall much easier believe that these are diseased heads.

The disease consists in a superabundant deposit of calcareous matter in the osseous tissue, which has uniformly expanded it, has diminished all its openings, and has closed a great part of them.

It is sufficient, from the slightest knowledge of the progress of ossification and that of fossilization, of incrustation or petrifaction, to see that the first of these causes has alone acted on these heads.

We have, besides, a great number of examples of these superabundant osseous deposits, which dilates the bones, at the same time rendering their tissue more dense; it is what some one names "la maladie éburnée." M. Sœmmering, in the memoir which I have quoted, produces several instances of it, and I do not doubt but that the members of this Academy who belong to the Faculty, have seen others of it, and that examples of it may be found in the numerous pathological collections of osteology of this capital.

In fine, although it were possible to believe that the head in the cabinet of M. de Jussieu is that of an adult, it presents several other characters which would have prevented it from being considered as that of a giant. The teeth in fact are larger than those of an infant of the age which I think ought to

be ascribed to it, but they do not surpass the size of those of an adult of ordinary height.

The *antero posterior* diameter of the base of the cranium, taken from the edge of the incisors even to the occipital hole, is considerably less than that of an adult: the occipital condyles are neither longer nor farther separated than in a man of small stature, so that the atlas is of no extraordinary size; and there is no reason to believe that the vertebræ which follow have had other proportions than the atlas.

This head was, then, of a monstrous size; but every thing proves that it belonged to a person of very ordinary stature, if ever he surpassed that which a child of seven years old ought to have.

When we enter into the detailed examination of all the alterations produced in these heads, we are astonished and frightened at them; and, far from believing that they have belonged to healthy men, we can scarcely believe that the individuals to whom they belonged could have lived sufficiently long to enable their disease to attain such a monstrous height.

In that of the cabinet of M. de Jussieu, the skull-cap is more than 15 lines thick; and far from the meshes of the diploe being dilated, it appears that they are extraordinary close.

But the internal diameter of the cranium has not enlarged in proportion. I do not believe that it is longer than that of many ordinary men: the *sella tunica* is not longer; the elevations which separate the fossil are not farther separated, but they are all inflated and rounded like all the prominences, all the laminæ, all the processes, internal and external.

We see no traces of suture, excepting those which separate the maxillary palate and nasal bones.

The zygomatic arches are so thick, that between them and the cranium there is only a very small passage for the temporal muscle.

The pteragoid processes, the vomer, the ossa palati, and ossa nasi, are so swelled, as almost totally to shut the cavity of the nostrils.

By a singular exception, the lachrymal canal remains free. The foramina optica have also remained open, but contracted; the spheno-orbitary and spheno-maxillary fissures only appear as two narrow furrows; and yet I believe them still permeable. I believe, also, that the pterigo-palatine and stylo-mastoid holes are open; but the foramen rotundum is imperceptible. What appears to be the foramen ovale is not the sixth part of the natural diameter.

I can neither see the carotid canal nor jugular hole; but, in general, all these parts are so changed in form and proportion, by the unequal swelling of the bones, that we can scarcely recognise the small holes and prominences.

The occipital hole is reduced to less than the half of its diameter, and its figure is rhomboidal, having on each side an angle or hollow, apparently for the vertebral arteries. The sinuses of the dura mater ought to have been as large as ordinary, judging of them by the grooves in the interior of the cranium.

It does not appear to me that the meatus auditorius externus has been closed.

M. Jadelot has presented detailed conjectures, and which appear to me, for the most part, very just, concerning the effects which this malformation ought to produce on the unfortunate individuals who were affected with it: but he has pushed some of them a little farther than I would do, because he has not perceived all the communications which still remain for certain nerves. Long before death the senses of this poor child must have been weakened or lost; perhaps he has been paralysed in several parts of his body, and it is probable that the nutrition of the brain would have been totally suppressed, if, as M. Jadelot has very well remarked, the vertebral arteries had not preserved their canal on each side of the occipital hole, and had thus supplied the obliteration of the carotids.

The preservation of the articulation of the lower jaw, and that of the passage for the temporal muscle under the arch, proves that the lower jaw had preserved some motion; and it is that, without doubt, which has for some time sustained the life of this miserable victim to human infirmities.

ART. XL.—*Case of a Child with two Uvulæ.* Communicated by PHILIP TIDYMAN, M. D. in a Letter to Professor CHAPMAN.

IN April last I was called by my plantation nurse to visit a black female child of five years old, whom I found with much fever. I soon discovered this to be a worm case, and after resorting to the usual treatment, she recovered in the course of fifteen days. During that time, nearly thirty lumbricæ (according to the report of the nurse) were expelled. The principal remedies made use of were calomel, and the turpentine mixed in castor oil. From the peculiarity of voice of the child, and manner of swallowing, I suspected the throat was ulcerated; but was informed by the grandmother, who was allowed to attend her, that she was born with a palate differently formed from that of any child she had ever seen; and she must have had frequent opportunities of observing, having acted as midwife for more than thirty years on that plantation and the vicinity. On inspecting the mouth and throat, there was not the slightest appearance of inflammation or ulceration, but a healthy, well-formed palate, from which projects two uvulas; they are about half an inch apart, one a little longer than the other, perfectly detached. The deglutition is slightly affected; in drinking *hastily*, the liquid will sometimes pass through the nares. The voice conveys a strong nasal sound. The child from her birth has always been in delicate health. The parents are likely and healthy negroes, and have two other children who are strong and healthy, with no unnatural appearance about their palates. Nature is often very capricious in the extraordinary display she makes, both in the animal and vegetable world. With regard to this singular *lusus naturæ*, in the instance of this little negro, I do not remember ever to have seen or heard of a similar one.

III, PHYSIOLOGY (HUMAN).

ART. XLI.—*Summary of the Experiments made by* Dr SIMON *relative to the Secretion of the Bile.*

THE secretion of the bile presents a very interesting problem of physiology, for the solution of which experiments have been made several times, that have proved ineffectual, on account of the difficulties which accompany the ligature of the vessels of the liver. In order to determine whether arterial blood, or blood from the vena porta, furnishes the materials necessary to this secretion, it has been conceived that we must have it in our power to tie either together or separately the excretory canals, and the vessels which convey to the liver two kinds of blood. The ligature of these vessels, which had been judged impossible, may however be practised with greater or less facility on certain species of animals; upon rabbits, for example, it is very easy, but on account of the little coloration of their bile, the results afforded are very inconclusive; and, on the contrary, when pigeons are made the subject of experiment, a still greater difficulty is encountered, on account of the hepatic artery. But we can draw from them positive inferences:—

1st, *Ligature of the Excretory Canals.*—The bile continuing to be secreted, and its evacuation impeded, the liver becomes chocked up, and filled with globules of a fine green tint. This colour is diffused over the whole surface of the organ, and affects the adjoining parts. The green tint is the best marked, the older the animal is, and the longer it survives.

From ten to twenty hours after this ligature, the animal discharges by the anus matter absolutely green, and of the colour of the bile, with which the liver is overloaded. This coloration of the excrements augments in intensity even to death, and satisfies us that the green matter to which it is due exists solely in the cloaca, or that it is deposited by the ureters. This fact, when viewed in connection with the observation of Messrs Dumas and Prevost, who have proved that the biliary secretion was increased by the interruption of that of the urine, prove, that the kidney and the liver compensate

more or less completely for the excretion of the product of their secretion, when it cannot take place through natural channels.

2dly, *Ligature of the Excretory Canals, and of the Hepatic Artery.*—Twelve hours after having fixed these ligatures, the surface of the liver assumes a yellow tint, which colours also the adjacent parts: the canals are overloaded, and announce the presence of bile. Twenty hours after the ligature, the liver is found to contain a great quantity of green granulations, more numerous in the left than in the right lobe; the cloaca contains green matter, as in the preceding case. If the life of the animal be prolonged even to forty hours, the green colour of the liver and of the excrements becomes more deep.

These last experiments are calculated to prove, that the secretion of the bile continues a long time after the liver has ceased to receive arterial blood.

3dly, *Ligature of the Artery alone.*—In this case the liver is not chocked up, since the excretory canals are free; but after death, it must be acknowledged, that the secretion did notwithstanding take place; for we find bile in these canals, and the matters contained in the intestine present the bilious tint, as in the natural state.

4thly, *Ligature of the roots of the Vena Porta, and of the Hepatic Canals.*—The liver is then entirely discoloured, and shews no longer any thing more than a tint of a pale rose colour, like that of the lungs of birds; we do not meet with any trace of bile; the intestine contains only a grey or white pulp; the cloaca is filled with excrements destitute of any mixture of a green colour, and notwithstanding all this, many pigeons have survived the ligature even thirty-six hours. If we tie only the principal trunk of the vena porta, and if we suffer the gastro-hepatic veins to enter it, the right lobe which receives them is, after fourteen hours, in the natural state, while the left is discoloured, and presents on its surface some traces of bile.

From these four series of experiments, the results of which accord perfectly together, we may conclude:

1st, That the ligature of the hepatic artery does not prevent bile being found.

2dly, That the presence of this bile is manifest, when we tie at the same time the excretory canals.

3dly, That it does not appear doubtful but that it is the blood of the vena porta which contributes to the secretion of bile, since the ligature of this vessel stops this secretion.—*Nouveau Bulletin des Sciences par la Societe Philomatique de Paris, Aout* 1825.

COMPARATIVE PHYSIOLOGY.

Art. XLII.—*Letter from* Dr Harlan *to* N. M. Hentz, *Esq., containing some farther Observations on the Physiology of the Alligator.*

Since I had the satisfaction of communicating with you, I have enjoyed another opportunity of dissecting an alligator, 3 feet in length, which had lived several months in the Philadelphia Museum. As the following facts tend to confirm the observations we made some time ago, on three individuals, I hasten to communicate them, in order to give you an opportunity of adding them to your paper, which I understand will soon be published. This dissection was performed on the 6th of January 1824.

1. I forced air into the vena cava ascendens, which injected the right auricle and ventricle, passed into the lungs through the pulmonary artery, and into the splanchnic aorta, and also into the systemic aorta, through the valvular opening at the base of the former.

2. I forced air into one of the pulmonary veins, which inflated the left auricle and ventricle, passed into the systemic aorta and the subclavian trunks which leave the supercordal sac.

The apex cordis was not attached to the pericardium, as is usually the case.

The circulation of these animals is briefly as follows:

The blood passes from the right auricle into the ventricle of the same side. From this cavity there are three openings:—1. One into the systemic aorta, by a valvular communication at its base, which allows the continuation of the circulation, when the progress of the blood through the lungs is impeded by expiration.—2. One into the pulmonary artery.—3. And one into the splanchnic aorta, carrying black blood to the viscera. During expiration, there is still some pulmonic circulation; a small quantity of blood passing from the lungs into the left auricle to the ventricle of the same side, from whence it has a direct passage into the systemic aorta. The valve, at its base, will not permit even wind to pass into the right side; nor will the semilunar valves of the aorta permit regurgitation; so that the only mixture of the black and red blood takes place in the systemic aorta, during expiration or collapse of the lungs.

Art. XLIII.—*On the Nerves which enter into the structure of the Horns of the Fallow Deer during their growth.*

At the request of Sir Everard Home, Mr Bauer examined the structure of the horns of the fallow deer during their growth, while covered with velvet. He found them to be abundantly supplied with nerves. From this circumstance,—of nerves being met with, when sensibility is not only unnecessary, but even where the parts are unfitted for their office till the nerves are removed, which takes place as soon as the horns are full grown,—Sir Humphry Davy has inferred, that nerves answer some other purposes in the animal economy, besides regulating the actions of the arteries; an office which he has long since considered them to perform, and has illustrated his opinion by the effects of irritation on the par vagum and great sympathetic nerve, and on the carotid artery. Since that time, by considering the incubation of the chick, he has been led to believe that the arteries were indebted to the nerves for their formation.

Art. XLIV.—*The Respiratory Organs of Crustacea.*

Professor Turner, who is at present on the Continent for the recovery of his health, writes to a correspondent, that at a meeting of the Institute of France, M. Geoffroy St Hilaire, author of numerous works on zoology, endeavoured to prove, by a series of anatomical preparations, that the organs of respiration in crustaceous animals are more complex than has been generally supposed, inasmuch as these animals possess, not only gills, but, in addition, certain organs which he (M. St Hilaire) must consider as lungs.

It is far from improbable, that this view of M. St Hilaire may prove correct. The anatomy of the crustacea is singularly defective, and it is very generally admitted, that the exact distribution of their vesicular system has never been satisfactorily made out. Discoveries, then, relative to the structure of these animals need not surprise us; neither is the presence of both forms of the respiratory organs in the same animal unique, since it exists in the proteus, the siren, and probably in the Mexican axolothl.

IV. PATHOLOGY.

Art. XLV.—*Notice by* M. Langier *upon a singular concretion found in the Human Rectum.*

A concretion, addressed to M. Breschet, appears to have puzzled the French Philosophers. It was extracted from the rectum of an individual, and was at first named by them *a human egagropile*. It was a true felty substance, like that of which hats are composed, but with this difference, that, instead of hair, it was composed of vegetable fibres. The nucleus, however, was of a composition quite different from the substance with which it was surrounded. The exterior of it proved, upon a chemical examination, to be no

thing more than dried blood, while the interior part of the nucleus was what seemed to be bone that had lost a part of its gelatine; and had been, no doubt, swallowed by the individual from whom the concretion was procured. As for the origin of this concretion, it must be attributed, either, To a habit, contracted, perhaps, during infancy, of chewing ligneous substances, such as wood or roots, particularly the root of liquorice, the savour of which is sweet and agreeable,—or, To the habit of chewing the leaves of tobacco; but this explanation may be objected to, on account of this custom being so general among soldiers and sailors, whence it might be expected that an accident of a similar nature would be more general. This concretion, add the French physicians, is the first of the kind which they have observed.

ART. XLVI.—*Case, in which clots of Blood were said to have oozed from the face of a Girl.*—Abstract of a communication addressed to Professor CHAPMAN of Philadelphia, by Mr CHARLES FULLERTON.

"THE girl is small of her age, but well made, of a good disposition, and of a poor but honest and industrious family. In the spring and summer of 1823, a little blood would occasionally appear about her eye and face, which neither excited alarm nor curiosity. In the November following, however, the quantity became suddenly very large. The family in which she lived think a pound was found some mornings about her face and pillow in clots. When this oozing of blood had continued about five days, a physician being called in, applied, without knowing for what reason, a plaster to the place from whence the hemorrhage came. But the blood soon pushed it off. About this time, fimbriated substances, resembling moss or spiders, and pieces of bone, were discovered among the clots. Henceforward things changed.

"Generally a single clot of blood would appear first in the morning, and be followed by lumps of fleshy substance and pieces of bone, alternately, all day. The bones were of every size under the weight of two drachms, of various and irregular shapes, generally having one or two smooth sides without any periosteum, while the other sides appeared much like fractured surfaces. They continued to come for about six weeks, with an intermission of three or four days. At first they came as often as once in every ten or fifteen minutes, and were very hard. At last they came much more seldom, and gradually assumed a cartilaginous appearance. They generally adhered to the cheek slightly, by a kind of glutinous substance, till pulled off. Their first appearance was astonishing. While the by-standers would be gazing at the place from whence they came, they would be suddenly surprised with their appearance, without being able to tell how they came, for the girl would feel no pain, and not the least sign of an opening or a scratch could ever be discovered. All agreed in thinking they must come through the skin.

"The lumps of flesh that alternated with the bones were about the size of the end of a finger, and had much the appearance of the soft kind of polypus.

"All these things appeared about the left eye, and mostly upon the cheek under the eye. Two pieces of cartilage made their appearance between the eyelid and eye. The last of all that appeared was a cartilage nearly as large as the nose, which came through the left nostril, causing in its passage considerable irritation.

"During this extraordinary case, I visited the girl several times, and once in company with several other physicians. Not the least sign of swelling, discoloration, soreness, or any thing else indicating disease, could ever be discovered about the girl, except she acknowledged that she had occasionally a slight pain about her hips and loins.

"I have been told, that soon after the last cartilage made its appearance, she commenced menstruating regularly, and nothing strange has ever appeared about her since. During the time the bones were coming, the girl was subject to eructating, after eating, a kind of gas of a very strong smell, which the family compared to that of whisky."

N. B.—*Is not this rather an extraordinary case of credulity in the physicians, than of disease in the patient?*—EDIT.

ART. XLVII.—*Pathological Inferences deduced from a Cancerous State of the Heart.*

M. Segalas presented to the Philomathic Society of Paris a specimen of pathological anatomy which is very remarkable: It was *a heart, the right ventricle of which was found converted into a cancerous substance, and in the left ventricle there was to be perceived the commencement of a similar disorganization.* This heart, adhering to the pericardium through its whole extent, and being of a volume greater than what occurs in the healthy state, was found in a child of eleven years of age. M. Segalas conducted the anatomical examination of this subject, but did not himself attend the patient. All that he had been able to collect, was from facts anterior to death. These he has reduced to the following:—

The child, after having shewn symptoms of pleurisy and pericarditis, subsequently enjoyed a year of tolerably good health, when a gradual augmentation of the size of the belly excited the uneasiness of his parents, and induced them to consult three practitioners of the capital, *MM. Lerminier, Jadelot*, and *Fourcadelle*. These physicians discovered a peritoneal dropsy and an affection of the heart, but without venturing to assign the character of them. Nevertheless, finding the pulse well marked and the patient strong, they prescribed an application of leeches for the following day. Three hours after this consultation, the child ceased to exist. He sunk all at once without shewing any other phenomena than a sudden fall, and a rattling in the throat of some minutes' duration; and yet he had not until then ceased to attend to his school occupations. During the whole time of the conference he remained standing, and each physician had been able to carefully examine him with the stethoscope, without it appearing to fatigue him.

The examination of the corpse was made thirty-four hours after his death. The following is what was observed:—

The body, placed in an horizontal situation, and slightly inclined upon the right side, shewed in all the corresponding portions of the skin a considerable extravasation of blood, and upon the declining parts of the face, an abundant accumulation of frothy mucous matter. The abdomen was distended by a fluid. The limbs were in their usual condition.

On the opening of the splanchnic cavities, the viscera were found in the following state. In the *cranium* the brain and its envelopes were gorged with blood, but without apparent disorganization; the left ventricle containing nearly a spoonful of clear serum.

In the spine there existed two or three spoonfuls of a similar serum, and a strong injection of the vessels, without any appreciable alteration of the marrow.

In the *thorax* the left pleura was the seat of a serous and sanguine effusion of ten ounces at least; the right pleura adhered in its entire extent to the corresponding lung. The left lung was sound; the right completely gorged with blood. The bronchial and the rest of the air tubes were filled with a frothy and slightly bloody mucus. The pericardium was closely united to the heart. This last mentioned organ, a good third more voluminous than usual, had the coats of the right ventricle entirely disorganized, and converted into a lardy substance, nearly approaching the cerebriform cancer. The coats of the left ventricle shewed a similar alteration in different parts of their extent. The interventricular partition, and the auricles of the heart, alone remained sound.

In the abdomen there was an effusion of lemon-coloured serum. The liver was swelled and gorged with blood. The spleen was four times its usual size. The small intestines shewed here and there traces of a slight phlogosis. The coats of the gall-bladder were manifestly thickened. All the other parts were in the natural state.

This fact was of a nature calculated to interest the Society on many accounts. It is rare, 1*st*, That a cancerous affection should establish itself in our organs at an age so tender as that of the present subject.

2*dly*, It is still more rare, that a cancer should have its seat in the heart, for until the present time, we only know seven well authenticated examples of such a disorganization. One of these was noticed by M. *Rullhier*, and the model in wax is to be seen in the museum of the Medical Faculty. Another has been observed by M. *Bayle*, the nephew, a third by M. *Recamier*, a fourth by M. *Cruveilhier*, a fifth by M. *Ollivier* d'Angers, and the two others by M. *Andral*, junior. *Bayle*, *Corvisart*, MM. *Laennec* and *Bertin* have never seen it. In all the cases observed, the subjects were more or less advanced in age, except, perhaps, in that of M. Rullhier; nor was the disease so extensive in any of them as it was here.*

3*dly*, It is remarkable, that with such a disorganization, the child could participate in the different exercises of his comrades, and even distinguish himself in his studies. He was always easily fatigued, and felt from time to time slight vertigoes. He had also, according to the expression used by his parents, a *heavy* sleep;—he wakened with difficulty, as if the circulation of the black blood being made with no less difficulty, the stagnation of this blood had rendered the brain less excitable.

4*thly*, It is again remarkable, that the disease had made such great progress, and determined an hydrophic ascites, without occasioning the slightest puffy swelling in the inferior extremities.

5*thly*, The augmentation of the volume of the liver, and the still greater one of the spleen, without any organic lesion in these viscera, constitute a fact, which, though perhaps frequent, is not less important in this case, as denoting the influence that a constraint on the course of the black blood exercises upon the development of these organs,—an influence which is found directly established by experiment in a memoir that, in a short time, M. Segalas will submit to the Society.

6*thly*, The effusion of clear serum in the cavities of the arachnoid membrane, that of the bloody serum in the right pleura, and above all, the mass of frothy mucus in all the extent of the air tubes, are likewise important facts, in as much as they accord exactly with the effects of the sudden suspension of the circulation by the injection of oily substances into the veins, and thus indicate syncope, and, consequently, the disorder of the heart, as the immediate cause of death.

Lastly, the disappearance of the muscular fibres, and afterwards of the vital irritability in the whole of one ventricle, and in many parts of the other, without there being more apparent disorders in the functions of the heart, constitutes a remarkable fact. The dropsy and sudden death, which were the result of this alteration of substance, establish a new affinity between cancer of the heart and the other organic disorders of this viscus; for in the facts observed up to this time, it has been supposed that we ought to refer such death to other causes besides those which affect the circulation.

V. CHEMISTRY.

Art. XLVIII.—*Native Carbonate of Soda.*

Soda in combination with carbonic acid, is a natural production, has been long known, and large quantities of it are procured, under the name of *Trona*, from

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* In the observation of M. Recamier, the parts affected are not indicated; in the case of M. Ollivier, the inferior half of the right ventricle was alone affected; in that of M. Bayle, it was the two auricles and the interventricular partition. In one of the cases of M. Audral, the cancer had for its seat the right ventricle only; in the other, the right ventricle and auricle; in both there remained muscular fibres in the altered parts. In the observation of M. Cruveilhier, the disease consisted in cancerous masses of a tubercular form, of which the greater number shewed themselves on the surface of the heart, and some only in its thickness. As to the case of M. Rullier, the model in wax does not permit us to judge of the extent of the disorder.

the province of Sukena in Fezzan. Another lake producing the same salt has been long known to the Indians in the republic of Colombia. This lake has lately attracted the attention of MM. Marian de Rivero and J. B. Boussingault, who have published an account of it, and an analysis of the salt. The lake, which is small, is near an Indian village named Lagunillas, situated to the south-east of the town of Merida: the water is not saline, and is drank by animals without reluctance.

The salt, which is termed *Urao* in the language of the country, is crystallized in prismatic needles, diverging from a common centre: its aspect is vitreous; its hardness little inferior to that of carbonate of lime, and its taste is similar to that of carbonate of soda. It does not effloresce in the air. According to the analysis of the above-named chemists its components are,

Carbonic acid, - -	0.3900
Soda, - - -	0.4122
Water, - - -	0.1880
Extraneous matter, and loss, -	0.0098
	1.0000

This salt contains, therefore, more carbonic acid than the artificial carbonate, and less than the bi-carbonate. It also contains one-fourth more of soda than the Trona. It is used chiefly to mix with tobacco to form a masticatory, which the Indians call *Chimo* or *Moo.**

Art. XLIX.—*The Cystic Oxide Calculus more common than supposed.*

The occurrence of the cystic oxide calculus appears to be more common than was at first supposed. Our readers will remember, that this substance was first noticed by Dr Wollaston, who published his description of it in the Philosophical Transactions for 1810. He had seen at that time only two instances of it; but several cases have since been met with, from which it is probable, that they will more frequently be found whenever they shall more generally be looked for.

The three cases mentioned by the late Dr Marcet, in his Treatise on Calculi, as having fallen under his own observation, are interesting and instructive. They show that the formation of cystic oxide, contrary to the supposition from which its name was derived, may take place in the kidneys. For, in one of the cases, the descent of a stone from the kidney to the bladder was distinctly indicated by the symptoms; and, in the two others, cystic oxide calculi were actually found in the kidney after death. The formation of cystic oxide, according to Dr Marcet, is usually connected with renal disorders; and he conceived that these calculi were peculiar to the kidney rather than to the bladder. Two of Dr Marcet's cases occurred in brothers; whence it seems probable that the cystic oxide diathesis may be of an hereditary nature.

We have made these observations as preliminary to the history of a case, the first part of which is already before the public. We allude to the following letter from Professor Stromeyer to Mr Noehden on the subject of cystic oxide, published in the eighth volume of the Annals of Philosophy, New Series. He states, that "he had some time ago the great satisfaction of discovering in gravel from the human body Dr Wollaston's cystic oxide; and afterwards, in the urine of the same patient, who is afflicted with the stone, the same substance in a considerable quantity. In this urine, the uric acid was almost totally wanting, nor was the urea found in it in natural quantity. As the cystic oxide has hitherto not been found in any human concretions any where but in England, and has as yet been no where observed in the urine itself, I wish you, if you should see Dr Wollaston, to mention this to him, at the same time respectfully remembering me to him. I have no doubt this intelligence will interest him. I mean shortly to publish a brief notice upon the subject. Last year M. Lassaigne of Paris also found cystic oxide in a stone from the bladder of a dog."

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* *Annales de Chim. et Phys.* Tome xxix. p. 110.

We are happy in being able to give the following particulars relative to this case, which we state on the authority of Dr Turner, who has lately received an account of it from Professor Stromeyer. In consequence of suffering from symptoms of stone in the bladder, the gentleman above alluded to submitted to the operation of lithotomy, and three cystic oxide calculi were extracted. It is remarkable that a sister of this gentleman has likewise been subject to a similar complaint, having once passed a stone by the urethra, which proves, on examination, to be cystic oxide.

This is one of the most instructive instances of cystic oxide hitherto published. We here detect Nature in the act of forming the calculus: the cystic oxide is found copiously in the urine itself, it is deposited in the form of gravel, and ultimately gives rise to a regular stone. It is most probable that the formation of such calculi is always preceded by the presence of cystic oxide in the urine itself; and we should expect from this circumstance that the deposition may take place in any part of the urinary passages. In the present case, the calculi seem to have been formed in the bladder. The tendency of this disease to attack more than one member of a family, noticed by Dr Marcet, is also confirmed.

Is cystic oxide foreign to healthy urine, or does it exist in it naturally in small quantity? We are not aware that the urine has been examined with the view of deciding this point, or that the question itself has been distinctly stated. From the difficulty of separating animal principles from complex animal fluids, it is obvious that a substance like cystic oxide, which is held in solution by so many reagents, may easily have been overlooked.

Art. L.—*On the presence of Mercury in Urine.*

Dr Cautu of Turin has detected the presence of mercury in the urine of persons under the action of mercury. He collected 60 pounds of urine, voided by syphilitic patients who were employing mercurial frictions. It very speedily became alkaline, and deposited an abundant sediment, which was collected on a filter. The clear liquid was subjected to various trials, but presented no trace of mercury. The precipitate, mixed with an equal weight of carbonate of potash and powdered charcoal, with sufficient water for making it into a paste, was heated gradually to redness in a glass retort, the beak of which was dipped into a recipient filled with water. At the close of the experiment, a pulverulent matter appeared at the bottom of the water, which, after being dried, yielded globules of mercury from mere pressure. The quantity appeared to be about 20 grains. The neck of the retort contained also a considerable number of small globules. *Ann. de Chim. et Phys.* vol. 27.

Art. LI.—*Presence of Iodine in Native Sulphureous Waters.*

(Notice on the presence of iodine in native sulphureous waters, by Dr Cautu. Ann. de Chim. et de Phys. B. 28. s. 221.)—Angelini appears to have been the first who observed the presence of iodine in mineral water. He found iodine first in the saline water of Voghera, by means of starch, but did not impart his discovery to the public; more lately also in the mineral water at Sales, in the province of Voghera.

Cautu, professor of chemistry at Turin, in consequence of the admirable effects of the sulphureous waters of Castel Nuova d'Asti in Bronchocele, and other diseases of the glandular system, sought also after iodine in this water, but without effect. Encouraged by the researches of Angelini, he undertook a new investigation, which led him finally to the desired result.

The water was evaporated to dryness, and the salts of iodine, as well as the separable chlorides, were extracted by alcohol. The spirituous fluid being afterwards evaporated, the residue was dissolved in a weak solution of starch, and some chlorine added. In this manner the fluid received as perfect a blue colour as if some drops of a solution of starch had been let fall into a watery solution of iodine. Instead of the alcohol, the residuum of the mineral water, after it has been evaporated to dryness, may be treated with starch and chlorine.

Cautu was inclined to believe that iodine was to be found in all the sulphureous waters which contain combinations of chlorine. He would not, however, hazard this conjecture as certain, till new experiments had been established respecting it. But as these waters do not instantly dye starch of a blue colour, the iodine must exist in them as an iodic salt.

In several saline mineral waters, for instance one at Echaillon in Savoy, which contains one-twelfth of its weight of table salt, and is known as a powerful remedy in Bronchocele, no trace of iodine can be detected.

VI. BOTANY.

Art. LII.—*Notices of Botanical Publications.*

CURTIS'S BOTANICAL MAGAZINE.

No. 464.—t. 2593. *Zephyranthes striata*, Herb. t. 2594. *Z. carinata*, Herb. This and the preceding were brought from Mexico by Mr Bullock. t. 2595. *Waldsteinia geoides*, Willd. Nat. of Hungary. t. 2596. *Hallia imbricata*, Thunb. Cape of Good Hope. t. 2597. *Habranthus bifidus*, Herb. from Buenos Ayres. (The specific character 14 lines in length!) t. 2598. *Stylidium adnatum*, β. Br. New Holland. t. 2599. *Tigridia Herberti*, Lindl. Buenos Ayres. t. 2600. *Lechenaultia formosa*, Br. Raised from New Holland seeds by Robert Barclay, Esq. of Bury Hill.

No. 465.—t. 2601. *Cotyledon coruscans*, Haw. Cape of Good Hope. t. 2602. *Metrosideros viridiflora*, Sims. A new species very near *M. saligna*. t. 2603. *Oplotheca floridana*, Nutt. North America. t. 2604. *Nolana paradoxa*, Lindl. Chili. t. 2605. *Origanum Maru*, L. Crete. t. 2606. *Caladium seguinum* β. *maculatum*, Willd. From the West Indies, where it is known by the name of Dumb Cane, on account of its effects when applied to the tongue, which swells so much, along with the neighbouring parts, as to render a person speechless for some time.

No. 466.—t. 2607. *Zephyranthes candida*, Herb. Imported from Peru and Buenos Ayres. t. 2608. *Gladiolus alatus*, L. var. β. A very pretty variety from S. Africa. t. 2609. *Convolvulus Dahuricus*, Herb. From seeds communicated by Dr Fischer. t. 2610. *Wachendorfia paniculata*, L. var. β. Cape of Good Hope. t. 2611. *Cornutia punctata*, Willd. West Indies. t. 2612. *Nuttalia digitata*, (Dick MSS. according to Dr Hooker). It was found by Mr Nuttall in the Arkansa territory, N. America. It is singular Dr Sims should merely allude to another species said to exist in the botanic garden at Philadelphia, when that very species was published by Dr Hooker, in his Exotic Flora, three months prior to the date of the plate in the Bot. Mag. t. 2613. *Nauclea Adina*, Sm. Nat. of China. t. 2614. *Gomphrena perennis*, L. Brazil.

BOTANICAL REGISTER.

No. 126.—t. 904. *Eria stellata*, Lindl. Nat. of Java. t. 905. *Cydonia Chinensis*, Thouin. t. 906. *Ornithogalum corymbosum*, Fl. Peruv. Chili. t. 907. *Bucida buceras*, Vahl. West Indies and S. America. t. 908. *Pogonia pendula*, Lindl. Canada. t. 909. *Encelia canescens*, Cav. From Peru. t. 910. *Oncidium papilio*, Lindl. Trinidad.

No. 127.—t. 911. *Beaumontia grandiflora*, Wallich, MSS. Nat. of Chittagong. A noble plant. t. 912. *Lotus Arboreus*, Forst. t. 913. *Oxylobium retusum*, Br. (*Chorizema coriacea*, Sm.) From King George's Sound, New Holland. t. 914. *Stylidium adnatum*, Br. From the same country. t. 915. *Cotyledon decussata*,

Bot. Mag. t. 2518. Southern Africa. t. 916. *Lechenaultia formosa*, Br. New Holland. t. 917. *Hibiscus racemosus*, Lindl. Nat. of Nepaul.

No. 128.—t. 918. *Jasminum trinerve*, Vahl. Nat. of the East Indies. t. 919. *Rosa microphylla*, Roxb. MSS. East Indies. t. 920. *Oncidium pumilum*, Lindl. Brazil. t. 921. *Testudinaria elephantipes*, Burch. Cape of Good Hope. t. 922. *Aquilegia atro-purpurea*, De Siberia. t. 923. *Cacalia salicina*, Labill. New Holland. t. 924. *Blandfordia grandiflora*, Br. New Holland. t. 925. *Castilleja septentrionalis*, Lindl. Labrador.

HOOKER'S EXOTIC FLORA.

Part 26.—t. 173. *Tillandsia bulbosa*, Hook. Sent from Trinidad by the Baron de Shack. t. 174. *Corallorhiza multiflora*, Nutt. N. America. t. 175. *Habenaria bracteata*, Br. N. America. t. 176. *Cinnamomum nitidum*, Hook. (*Laurus nitida*, Roxb. MSS.) East Indies. t. 177. *Thunbergia alata*, Bojer MSS. Mauritius.

Part 27.—t. 178. *Gongora atro-purpurea*, Hook. Trinidad. t. 179. *Brassia caudata*, Lindl. A most superb Orchideous plant from Jamaica. t. 180. *Lysimachia atro-purpurea*, L. From the Levant. t. 181. *Alstræmeria rosea*, Hook. Chili.

Part 28.—t. 182. *Caladium virginicum*, Hook. (*Arum virginicum*, Linn. Ph.) N. America. t. 183. *Œnothera odorata*, Jacq. Raised from seeds communicated by Dr Gillies, from S. America. t. 184. *Dendrobium Calceolaria*, Carey MSS. A magnificent plant, native of the East Indies. t. 185. *Galega tricolor*, Hook. Raised in the Liverpool Bot. Garden, from seeds gathered in New Holland.

SWEET'S BRITISH FLOWER GARDEN.

No. 31.—t. 121. *Lithospermum davuricum*, Lehm. t. 122. *Pæonia Russi.* Biv. t. 123. *Delphinium pictum*, De Cand. t. 124. *Potentilla atro-sanguinea*, Don. A very handsome species.

No. 32.—t. 125. *Whitleya stramonifolia*, Swt. Nepaul. t. 126. *Passiflora Colvillii*, Swt. A hybrid produced from P. *incarnata* and P. *cærulea*. t. 127. *Dinetus racemosus*, Swt. (*Porana racemosa*, Roxb. Don. Fl. Nepaul.) Nepaul. t. 128. *Tigridia conchiiflora*, Swt. Mexico.

No. 33.—t. 129. *Nuttallia digitata*, Dick. MSS. t. 130. *Lupinus mutabilis*, Swt. t. 131. *Ornithoglossum undulatum*, Swt. t. 132. *Anagallis indica*, Swt. (A. *arvensis*, Wall. Fl. Ind.)

MONANDRIAN PLANTS of the Order Scitâminiæ, by William Roscoe, Esq. Large folio.

Six Parts of this splendid Work are now published, and contain a great number of very interesting plants, including some entirely new and magnificent species. In the last three parts, we have figures of the following :—

Part 4. *Canna denudata*, Rosc. *C. denudata var.* Rosc. *Maranta arundinacea*, Linn. *Hedychium coccineum*, Sm. *H. maximum*, Rosc. *Hellenia cærulea*, Rosc. *Kæmpferia ovalifolia.* Rosc. *Costus spicatus*, Sm.

Part 5. *Canna iridiflora*, Ruiz et Pavon. The most splendid of all the Cannæ. *C. latifolia*, Rosc. *Hedychium augustifolium*, Roxb. *H. elatum*, Bot. Reg. *Zingiber rubens*, Fl. Ind. *Kæmpferia pandurata*, Roxb. *Curcuma latifolia*, Rosc. *Globba careyana*, Roxb.

Part 6. *Canna indica*, Ait. C. *patens*, Ait. *Phrynium grandiflorum*, Rosc. *Hedychium aurantiacum*, Rosc. *H. ellipticum*, Buch. *Zingiber capitatum*, Fl. Ind. *Costus maculatus*, Rosc. *Curcuma rubescens*, Roxb.

GREVILLE'S SCOTTISH CRYPTOGAMIC FLORA.

No. 40.—In this number are represented, t. 196. *Hydnum Auriscalpium*, Linn. t. 197. *Cenangium ferruginosum*, Fries. t. 198. *Sepedonium mycophilum*, Link. 199. *Grimmia torquata*, Hornsch. MSS. A new species, discovered on the

Carinthian Alps and several of the Scottish mountains, but always in a barren state. t. 200. *Dothidea Ulmi*, Fries, and D. *Betulina*, Fries.

No. 41.—t. 201. *Cryptosphæria millepunctata*, Grev. New species. t. 202. *Polyporus varius*, Fries. t. 203. *Grimmia spiralis*, Hook. and Tayl. MSS. A new species from the Scottish mountains of Breadalbane and Clova. t. 204. *Stromatosphæria typhina*, Grev. (*Dothidea typhina*, Fries.) Dr Greville has shown, by numerous dissections, that this singular plant does not in reality belong to Dothidea. t. 205. *Palmella cruenta*, Agardh. A curious crimson Alga found at the bottom of damp walls.

No. 42.—t. 206. *Cryptomyces Wauchii*, Grev. A new genus belonging to the Fungi proper, discovered by Captain Wauch. It grows beneath the epidermis of the branches of willow-trees. t. 207. *Polyporus squamosus*, Fries. The largest species of the genus. t. 208. *Exosporium Tiliæ*, Link. t. 209. *Æcidium laceratum*, Sow. Numerous dissections are given of this curious plant, especially of the structure of the peridium, which Dr Greville thinks has not been hitherto understood. t. 210. *Polysiphonia Agardiana*, Grev. A new species: found at Appin by Captain Carmichael, and in the Firth of Forth by Dr Greville.

TRANSACTIONS of the LINNEAN SOCIETY of LONDON. Vol. XIV. Part Third. 1825.

The only botanical article in this part, is a description, by Mr D. Don, of a new genus of plants of the Nat. Order Rosaceæ, which he has named Cowania, after James Cowan, Esq. an assiduous collector of rare plants. Cowania is allied to Dryas, as will be seen by the following generic character:—"*Calyx*, 5-fidus. *Petala*, 5. *Ovaria*, 5-11. *Ovulo* erecto. *Stili* terminales, continui. *Achenia* stylis plumosis persistentibus aristata. *Embryo* erectus."

Mr Don has also described a new species of *Sieversia*, (S. *paradoxa*.) Both plants were contained in the Mexican collection of Messrs Sesse and Mocinno, now in the possession of Aylmer Bourke Lambert, Esq.

The ENGLISH FLORA. By Sir James Edward Smith, President of the Linnean Society. 3 vols. 8vo.

It is with peculiar pleasure that we announce to our readers the appearance of the third volume of a work, in praise of which it is almost sufficient to say, that it is from the pen of the amiable author of "English Botany" and "Flora Britannica." To these works of far-extended reputation, the "English Flora" is not inferior in science, while its sphere of usefulness is more enlarged. "English Botany," from its costliness, is confined to the shelves of the affluent; and the "Flora Britannica," from being written in the Latin language, to those of the learned. But the "English Flora" will delight and instruct many true lovers of botanical science, who, though they may not be able duly to estimate the value of Sir James Smith's classical attainments, will fully appreciate the manner in which he has rendered a knowledge of our vegetable productions attainable by every one.

How greatly such a work was wanted, the numerous editions of Withering's Arrangement of British Plants is a convincing proof; and as the latter is, throughout, very far behind the science of the present day, the public have reason to be truly grateful for the "English Flora."

One of the primary objects of our author seems to have been, to recommend the study of his favourite science upon truly philosophical principles, and to establish a correct English nomenclature. In this, we suppose, no one will hesitate to confess he has happily attained his object.

The numerous alterations and additions prove that the present is a work of great labour. Every thing is revised with the utmost and most scrupulous attention: indeed a very slight examination is sufficient to shew that the author was warranted in his observation, that he was "aware of so great a progress in our general stock of knowledge, that a Flora of Britain, far from being necessarily a compilation or a translation, must now be a new and original work."

It is impossible, from our limits, to undertake any thing like a regular analysis of the "English Flora," and we shall only therefore mention a few of the leading novelties. The learned author has preferred the system of Linnæus, but has mentioned the Natural Orders, and under "each genus subjoined a compendious view of its natural habit, characters, and qualities." Some entire groups, and many genera, have received peculiar attention. In the *Cyperaceæ* and *Gramineæ*, most of Mr Robert Brown's improvements have been adopted, and the descriptions of the latter especially, composed with remarkable accuracy.

The whole natural tribe of the *Umbelliferæ* have been defined according to a new arrangement, and the characters taken from parts of the flower and fruit alone. As this has been done without losing sight of the exotic species, the thanks of the botanical world are assuredly due to the author for laying the groundwork, at least, of the first consistent characterization of these difficult plants.

In a work of this nature, a difference of opinion is almost sure to exist regarding the validity of certain species. Such will, probably, be the case in respect to several of the *Saxifragæ*, the *Rubi*, the *Rosæ*, and some other plants. Of the first of these there are 25 species, several of them so intimately resembling each other, that it is exceedingly difficult indeed to perceive any essential difference. In the genus *Rubus* there are 14 species, some of the new ones of which are unquestionably distinct. In *Rosa* there are 22, with minute and laboured descriptions; yet, judging from our own experience, so variable are the species in the field, that one might almost say of the best character—'Tis here—'tis there—'tis gone!

The third volume terminates with the class Syngenesia. We shall subjoin a list of the species added to the British Flora, and then take leave of the learned President. We cannot, however, do so without heartily according him our approbation and congratulating him on the intense, yet innocent gratification, he has been the envied means of bestowing upon a numerous class, from whom works like his have hitherto been excluded by the use of a dead language.

The plants newly introduced to the British Flora in the volumes of this work at present published, are, Eriophorum *pubescens*, Galium *aristatum*, Sanguisorba *media*, Potamogeton *cuspidatum*, Myosotis *cæspitosa*, M. *intermedia*, Rubus *plicatus*, R. *rhamnifolius*, R. *leucostachys*, R. *glandulosus*, R. *nitidus*, R. *affinis*, Tilia *grandifolia*, Aconitum *Napellus*, Cnicus *Forsteri*. Recorded varieties, now raised to the rank of species, we have not inserted.

On various PLANTS used as TEA in different Countries. By Mr David Don, Librarian to the Linnean Society. Edinb. Phil. Journ. No. XXVI.

In this notice, we are informed by Mr D. Don, that the leaves of *Psoralea glandulosa* are generally used in Mexico and Guatimala in the preparation of tea. In New Granada they employ those of *Symplocos Alstonia*, (Humbt. et Bonpl.); in the north of the same continent, *Gaultheria procumbens* and *Ledum latifolium*, the latter well known by the name of Labrador Tea. The Paraguay tea, so highly prized in South America, is made from a species of Holly, *Ilex Paraguensis* of Mr Lambert's magnificent work on the genus *Pinus*, (vol. ii. append.) A living plant of this tree is now growing in Mr Lambert's collection at Boyton. *Corræa alba* is made into tea in New Holland; and *Pedicularis lanata* (Pall. MSS.) by the inhabitants of the Kurile Isles. Mr D. Don observes, in conclusion, that "common black Chinese teas consist chiefly of the old leaves of *Thea viridis*, mixed with those of the *Camellia Sasanqua*, or *oleifera*, and sometimes with fragments of the leaves of *Olea fragrans*; and that the finest teas, whether green or black, appear to be produced by the *Thea Bohea*, the quality and colour depending solely on the age of the leaves and the mode of preparing them."

AN ESSAY upon the CRYPTOGAMOUS PLANTS which grow on Trees producing the different kinds of Exotic Officinal Bark, by A. L. F. FEE. 4to. Paris.

WE congratulate M. Fée, on the production, not only of an ingenious, useful, and scientific book, but also one of greater elegance, beauty, and precision, in regard to the execution of the plates, than any other work on Cryptogamic Botany, that has issued from the Paris press.

The principal object of the undertaking, is to describe and figure a great variety of new species of cryptogamous plants, growing upon such trees as have their bark used for medicinal purposes. But the ingenious author has added besides, a *Methodus Lichenographica*, of no common merit, and an Essay upon the reproduction of cryptogamous plants. He endeavours to raise the humble but numerous tribes of the vast class of Acotyledons, if not in structure, at least in utility, and it would appear not altogether in vain. After noticing the more obvious uses of these vegetables, he proceeds to observe:

"Our intention in describing the cryptogamous plants growing on officinal barks, has been to render them subservient to a more complete knowledge of the Materia Medica, and thereby to add some additional interest to this study. The execution of our task owes its origin to this cause alone; but during its progress, the number of new plants it was our lot to discover, bestowed a much greater importance upon our labours, by enabling us to extend the limits of the vegetable kingdom; this memoir, therefore, must now be regarded as not merely illustrative of the Materia Medica, but also of botany as a science.

"Dr Merat, in a part of the article *Quinquina*, in the Dict. des Sciences Médicales, is one of the first naturalists who have called the attention of philosophers to characters taken from cryptogamous plants, as likely to facilitate the study of exotic barks, and he even points out some of these plants, without however attempting to determinate them.

"One great obstacle in researches of this nature, is the frequent difficulty of ascertaining from what country the specimens of bark under examination are obtained. We have no certain knowledge from what province of America we procure the False Angustura: Cascarilla is brought from various countries; and many parts of South America furnish the Quinquinas, which come to us almost always in a mixed state.

"Although, under the same latitudes, barks of trees, possessing similar physical qualities, produce the same parasites, as we observe in our climates, it is nevertheless certain, that on each tree are found species which very rarely occur elsewhere. Thus the Red Quinquina, (*Cinchona oblongi folia*, Mutis) nourishes a *Thelotrema*: the Yellow Quinquina, C. *cordifolia* Mutis), a *Chiodecton*; the Grey Quinquina (C. *condaminea*, Humb. & Bonpl.) a *Sarcographa*: the C. *laccifera*, (*Ruiz & Pavon*), a *Graphis*, which we cannot find upon their congeners. It is therefore possible, to a certain extent, to determine the species of bark by the cryptogamous plants they produce, By this means, which does not exclude a knowledge of the physical characters, but which certainly strengthens it, we may infallibly distinguish the species of Cinchona, and allied genera, natives of Peru, from those that grow in St Lucia, Jamaica, and other countries of the New World; for their parasites differ entirely from each other."

We trust that the importance of the subject will excuse the length of the extract: we hope also that others may be induced to pursue similar investigations, which, if they lead not to immediate practical results, favourable to our knowledge of the Materia Medica, cannot fail to be interesting to the philosophical naturalist, as contributing to our very limited knowledge of the geographical distribution of these plants.

M. Fée's work is to consist of seven parts, six of which have made their appearance. The plates are 33 in number, and contain above 130 figures, beautifully engraved and coloured: when complete, it will form a handsome quarto volume.

ANNALS of the LYCEUM of NATURAL HISTORY, New York, 8vo.

The first half volume of these Annals are published, with 13 plates, and contain several articles of great interest. In the concluding parts of the volume, among

other papers, will be a most valuable monograph of all the North American Carices, by the Rev. Lewis de Schweinitz, and Dr John Torrey, Professor of Chemistry at West Point. Judging from a proof-sheet which has been communicated to us, it appears to be executed in a very able manner.

RUBI GERMANICI, by Drs Weihe and Nees, ab Esenbeck, Fol. Bonn.

We have received the 4th part of this excellent work, containing spirited figures of *Rubus sylvaticus*, R. *pubescens*, R. *villicaulis*, R. *macroacanthos*, R. *argenteus* and R. *discolor*, all new species.

Art. LIII.—*Botanical Intelligence.*

Lichina pygmæa, (*Fucus pygmæus*, *Lightf.*).—Dr. Greville has succeeded in ascertaining the nature of the fructification of this plant, which, in habit, belongs to a genus, intermediate, as it were, between the *Algæ* and the *Lichens*. The seeds are not minute, and are arranged in continuous lines from the centre to the circumference of the gelatinous mass of filaments filling the tubercle. This plant, as well as L. *confinis*, will be represented in Dr Greville's Cryptogamic Flora. Since the above was written, we have received a letter from Captain Carmichael, informing us, that he also has recently detected the fructification of this genus at Appin, a spot already well known as the seat of many of that gentleman's discoveries.

Chara aspera.—It affords us peculiar satisfaction when we have to record the addition of a new plant to a country like our own, which has been too well searched to hold out very sanguine hopes to new adventurers in botany. In the present instance, however, we have to announce, that Mr Charles Clouston, of Stromness Manse, Orkney, has discovered *Chara aspera*, of Willdenow. We have compared his specimens with authentic ones communicated by Professor Agardh, and find them identical. It appears a very distinct species.

Orobanche rubra.—This rare and interesting plant has been found in England, we believe, for the first time, by Dr James Woodforde. It occurs, he informs us, in considerable abundance, on a bank immediately above an immense pit into which the sea rushes, called the "Devil's Frying-pan," near Cadgewitch, in Cornwall. Other stations for it have also been discovered in Scotland, Dr Graham having recently seen it in abundance in the Isle of Sky, on the banks of Loch-Slappen, near the Spar-Cave, and on the north-east coast of the same island, near Stenchel. Dr Woodforde likewise observed it on the Ross-shire coast, opposite to Stenchel, near the burying ground, Gairloch.

M. Adolphe Brongniart's Work on FOSSIL BOTANY.

We understand, from our friend the author, that the first part of this most important work may be expected about this time. We have seen many of the drawings intended to illustrate it, which are exquisite in their execution, as well as accurate in their details.

CRYPTOGAMIC BOTANY in North America.

We have great pleasure in learning, that the progress of botany in North America is not confined to Phænogamous plants; that while Dr Torrey, Mr Nuttall, Mr Elliott, and other able naturalists, decline entering the cryptogamic territory, it has been occupied by the Rev. Lewis de Schweinitz and Mr Halsey, who are collecting materials for a Cryptogamic Flora of the United States.

VII. MATERIA MEDICA.

Art. LIV.—*The Oil of Euphorbia Lathyris.*

Dr Frank, physician to the Arch-duchess Maria Louisa at Parma, in a letter to M. Caventou, at Paris, recommends strongly the oil of the Euphorbia *lathyris*, as a certain and efficacious purgative, producing its effects without exciting vomiting, colic, pain, or tenesmus; and that in dysentery, even when that complaint is accompanied with the most irritable bowels, it purges as kindly as the pulp of Tamarinds: That it operates in nearly as small a dose as the Croton oil, that is, from four to eight drops, and is free from the acrid and irritating properties of that purgative; and being free from odour and taste, it is well calculated for those to whom it is difficult to administer medicines. This oil ought to be fresh, for when it is even slightly rancid, it produces colic.

In addition to this notice, we give, from an Italian Journal, the following observations addressed to M. Caventou by Dr Louis Frank, upon the use of Euphorbia lathyris.

Dr Calderini recommends this medicine as an excellent purgative, which merits, in every respect, the preference over the oil of croton tilium. In fact, the latter acts most commonly as a violent drastic, while the former, when it is very recent, does not induce either colics or tenesmus. The oil of lathyris is administered always in so small a dose that it can be disguised more easily. M. Calderini affirms it to have obtained no less success as a purgative, by simple embrocation upon the navel; he maintains, in short, that with respect to economy, no other remedy can be compared with it: an ounce of this oil, which costs about one franc, being sufficient, according to this physician, to purge 96 sick persons.

Art. LV.—*Chemical Nature of the Lactucarium.*

M. Dublanc, junior, has analyzed *lactucarium*, and ascertained that it contains no morphia; hence, its hypnotic properties must be referred to some other principle.

Art. LVI.—*The Rhus Toxicodendron.*

Rhus *toxicodendron*, although the experiments made with it in this country were rather favourable to its powers in cases of Paralysis, has fallen altogether into disuse among British practitioners of medicine. Dr Givesius has administered the leaves of this species of Rhus, in doses of one fourth of a grain, twice a-day, in five cases of paralysis, four of which were cured.—*Bulletin des Sciences Medicales, Septembre* 1825.

MEDICAL POLICE.

Art. LVII.—*Efficacy of Vaccination curiously ascertained.*

It was lately ascertained in Paris that the proportion of deaths between male and female children, was as 764 to 500. This of course required some explanation. In a district inquiry, therefore, instituted relative to the proportion of children who were vaccinated, and those who were not so, it was found, that in the case of girls, one child out of four was subjected to this precautionary treatment, while in that of boys, one out of ten only underwent the process. It appeared that

those parents who with the greatest obstinacy refused to acknowledge the efficacy of vaccination as a complete preservative, were still disposed to admit its power in diminishing the chance of invasion from the disease which they feared, or of otherwise modifying it; for which reason they vaccinated their daughters, chiefly to preserve their faces from exhibiting those hideous marks the small pox leaves, conceiving that this object was not of equal importance with boys.

REPORTS OF PUBLIC BODIES.

Physiological Question, proposed by the Royal Medical Society of Edinburgh.

The Royal Medical Society propose, as the subject of their Prize Essay, the following questions:—

1. What is the respective agency of the veins, and of the lymphatics in the process of absorption?

2. By what means or mechanism do these vessels accomplish this process? What are the proofs which shew, that the substances absorbed are taken up by open mouths, or orifices, or pass through the coats in the manner of imbibition or transudation?

3. Is there any reason to believe, that the individual animal tissues possess a distinct power of absorption, or that this process is influenced by the nature of the animal tissues?

The sum of twenty guineas, a medal, or a set of books of that value, will be given to the author of the best dissertation on the subject proposed by the Society, for which all men of science are invited to compete.

The dissertations may be written in English, French, or Latin, and must be transmitted to the Secretary, on or before the 1st of December 1826; and the adjudication of the prize will take place in the last week of the month of February following.

To each dissertation must be prefixed a motto, which must likewise be written on the outside of a sealed packet, containing the name and address of the author. No dissertation will be received with the author's name affixed; and all dissertations, except the successful one, will be returned if desired, with the sealed packet unopened.

(Signed) N. Bain, Secretary.

APOTHECARIES' BILL.

It is of importance to the Medical Public to be informed, that the Act for amending the Apothecaries' Act of 1815, which was granted last Session of Parliament for one year only, expires next August, and, at the same time, to be aware that an inquiry into the evils arising from the Apothecaries' Act, and into the general state of medical practice and privilege, is likely to take place at the commencement of next Session of Parliament.

It is of the utmost consequence, therefore, that the Universities, Colleges of Surgeons, and Faculties of Medicine and Surgery, in behalf of their graduates and licentiates, as well as the graduates and licentiates themselves, (who, by the provisions of the Apothecaries' Act, are restrained from the practice of their profession in England and Wales), should be prepared to apply to Parliament for redress.

OBITUARY.

Died, lately, at Brighton, in the 76th year of his age, John Meyer, M. D. of Broad-street buildings, London.

Dr Meyer was a native of Germany, having been born at Lindau, on the borders of the Lake of Constance, December 27. 1749. He studied medicine and

polite literature at the University of Strasburgh, where he took his degree of M. D. in 1771: and subsequently visited, in pursuit of professional knowledge, the schools of Vienna, Paris, and London.

It was not, we believe, until 1784, that Dr Meyer settled as a practitioner in the English metropolis; and he was shortly afterwards admitted a licentiate of the College of Physicians. We have been told that, upon this occasion, he distinguished himself in the usual probationary examinations, by the fluency and purity of his latinity. The expectation of receiving the support and patronage of his numerous countrymen engaged in commercial pursuits, was probably Dr Meyer's inducement for selecting the city as the place of his residence. Soon after his arrival in London, Dr Meyer obtained the appointment of physician to the Finsbury Dispensary, which he held for about thirteen years. His advancement in private practice, like that of most metropolitan physicians, was at first slow, but it was steadily progressive; and the emoluments which he derived from his profession became, in the course of time, very considerable. Dr Meyer continued, for many years, to share largely the best practice in the city and its suburbs; and although, in the evening of life, his business began to decline, he retained to the last, among his earlier connexions, a sufficient portion of employment to occupy and amuse his mind.

Dr Meyer's acquaintance with medical literature, both ancient and modern, was general and extensive; and his classical attainments, particularly in the Greek language, were of a high order. In the intercourse of private life, he was cheerful, hospitable, and convivial; and supported consistently the character of an intelligent physician, a gentleman, and a scholar.

Additional Communication.

Dr Campbell, lecturer on midwifery in this city, has lately discovered in a still-born fœtus, a formation of the hymen, hitherto unnoticed. It is in the form of a strong band of condensed cellular membrane, apparently about a quarter of an inch in breadth, proceeding in an oblique direction from the pubic to the perinœal surface of the vagina. The vagina is pervious towards each side of this ligulated production.

QUARTERLY LIST OF NEW PUBLICATIONS.

LONDON.

Elements of Physiology. By K. A. Rudolphi, M. D. Professor of Medicine, and Member of the Royal Academy of Sciences of Berlin. Translated from the German, by William Dunbar How, M. D. In three volumes, Vol. 1. part 1. Price 10s. London, 1825.

An Analysis of Medical Evidence; comprising directions for practitioners, in the view of becoming witnesses in Courts of Justice; and an Appendix of Professional Testimony. By John Gordon Smith, M. D. 8vo. London, 1825.

A Practical Treatise on the Arterial System, intended to illustrate the importance of studying the Anastomoses, in reference to the Rationale of the New Operation for Aneurism, and the Surgical Treatment of Hemorrhage, with original Coloured Plans. By Thomas Turner, Member of the Royal College of Surgeons of London, Lecturer on Anatomy, &c. London, 1825.

A Short Inquiry into the Capillary Circulation of the Blood, with a Comparative View of the more intimate nature of Inflammation; and an Introductory Essay. By James Black, M. D. S. R. N. and Member of the Royal College of Physicians of London. 8vo. London 1825. Price 6s.

Additional Observations on the Treatment of certain severe forms of Hemorrhoidal Excrescence, illustrated by Cases; with the history of a Case, in which an enlarged Parotid Gland was successfully removed. By John Kirby, A. B. late President of the Royal College of Surgeons in Ireland, &c. Dublin, 1825. Part II.

Observations on the Transfusion of Blood, with an account of two cases of Uterine Hemorrhage, in which that operation has been recently performed with success. By Charles Waller, Member of the Royal College of Surgeons, &c. &c. London, 1825.

Further Observations on the Medicinal Leech; including a reprint from the Philosophical Transactions of two Memoirs, comprising Observations on the Hirudo Vulgaris, or common Rivulet Leech, and on the H. Stagnalis, and H. Complanata, now constituting the Genus Glossopora, with illustrative engravings. By James Rawlins Johnson, M. D. F. R. S. F. L. S., &c. Pp. 112. 8vo. London, 1825.

Researches on the Nature and Treatment of Dropsy in the Brain, Chest, Abdomen, Ovarium, and Skin, in which a more correct and consistent Pathology of these Diseases is attempted to be established, and a new and more successful method of treating them recommended and explained. By Joseph Ayre, M. D. Pp. 242. 8vo. London, 1825.

Medical Essays—Essay First, on the Effects of Intestinal Irritation; Essay Second, on some Effects of Loss of Blood; Essay Third, on Exhaustion and Sinking from various causes. By Marshall Hall, M. D. F. R. S. E. Pp. 96. 8vo. London, 1825.

A Toxicological Chart, exhibiting at one view the Symptoms, Treatment, and Modes of Detecting the various Poisons, Mineral, Vegetable, and Animal; to which are added, Concise Directions for the Treatment of Suspended Animation. By William Stowe, Member of the London College of Surgeons. In two folio sheets. Fifth Edition. 1825.

The Carolina Journal of Medicine, Science, and Agriculture, conducted by Thomas Y. Simons, M. D. and William Michel, M. D. Nos. 1. and 2. for January and April 1825. Charlestown S. C. 1825.

Dissertatio Inauguralis Chemica Sistens Analysin Chemicam Corticis Geoffroyæ Jamaicensis nec non Geoffroyæ Surinamensis à Gustavo Frid. Hüttenschmid. 12mo. Heidelbergæ, 1825.

Manifesto sull' Origine, e Propagazione della Febbre che regnò in Barcellona nell' anno 1821, publicato in detta Citta, da una riunione de Midici Stranieri e del Paese tradotto dallo Spagnuolo da Carlo Baldissone, Dottore in Filosofia, &c. 8vo. Genova, 1824.

Magazin der Ausländischen Literatur der gesammten Heilkunde, und Arbeiten des ærtzlichen Vereins zu Hamburg. Herausgegeben Von Dr G. H. Gerson und Dr Nikol Heinr. Julius. Sept. & Oct. 1825.

Zeitschrift, für Physiologie. In Verbindung mit mehreren Gelehrten, herausgegeben Von Friedrich Tiedemann, Gottfried Reinhold Treviranus, und Ludolph Christian Treviranus. Erster Band. Heft. 11. pp. 147—337. Tab. viii—xii. 4to. Heidelberg, 1825.

An Introductory Volume to "Collections from the unpublished Medical Writings of the late Dr Parry." By Charles Henry Parry, M. D. 12mo.

Practical Observations on certain Pathological Relations which exist between the Kidneys and other Organs of the Human Body, especially the Brain, Mucous Membranes, and Liver. By John Fosbroke, Surgeon. 8vo. 6s.

Observations on Tetanus, illustrated by Cases, in which a new and successful mode of treatment has been adopted. By Henry Ward, Surgeon. 5s.

Conversations on the Physiological System of Medicine of Professor Broussais. 8vo. 9s.

The Works of the late Matthew Baillie, M. D.; to which is prefixed, an Account of his Life. By James Wardrop. 2 vols. 8vo. L. 1. 5s.

South's Dissector's Manual. 8vo. 12s.

Annesley on Diseases of India. 8vo. 18s.

Cooper on Ligaments. 4to. L. 1. 1s.

Medico-Chirurgical Transactions. Published by the Medical and Chirurgical Society of London. Vol. 13. part 1. 8vo. 12s. boards.

A Century of Surgeons on Gonorrhea, and on Strictures of the Urethra. 12mo. 7s.

An Address to the Members of the Royal College of Surgeons, London, on the Injurious Conduct and Defective State of that Corporation, with reference to Professional Rights, Medical Science, and the Public Health. By John Armstrong, M. D. 1s.

An Attempt to Establish the First Principles of Chemistry by Experiment. By Thomas Thomson, M. D. 2 vols. 8vo. L. 1. 10s.

The English Flora. By Sir James E. Smith. 8vo. Vol. 3. 12s.

An Address to the Inhabitants of Lancashire, on the Present State of the Medical Profession. By Thomas Turner. 1s.

EDINBURGH.

Elements of Anatomy of the Human Body, in its Sound State; with Remarks on Physiology, Pathology, and Surgery. By Alexander Monro, M. D. F. R. S. E. Professor of Anatomy and Surgery in the University of Edinburgh, Fellow of the Royal College of Physicians, &c. &c. In two thick octavo volumes, illustrated by Twelve Engravings. Price L. 1. 18s.

Illustrations of the Anatomy of the Pelvis. By Alexander Monro, M. D. F. R. S. E. Professor of Anatomy and Surgery in the University of Edinburgh. This part consists of Seven Plates of the size of nature, which have been engraved by Miller, Horsburgh, &c. after the drawings of Messrs T. Uwins and M'Innes. Part First, Folio, Price L. 1. 5s.

A. Cornelii Celsi de Medicina, Libri viii. Ex recensione Leonardi Targæ, quibus accedunt Tituli Marginales perpetui, capitum, librorumque, Annotationes Criticæ, Medicæ, Physicæ: Tabulæ Characterum, Ponderum, Mensurarum, aliæque; Indices Materiæ Medicæ Celsianæ, rerumque locupletissimi; præfixa de Celsi vita Dissertatione. Concinnavit Eduardus Milligan, M. D. S. A. S. S. Coll. Reg. Med. Edin. Sodalis, Soc. Phil. et Lit. Man. et Leod. Soc. Ep. In one vol. 8vo. 16s.

A Treatise on the Effects and Properties of Cold, with a Sketch, Historical and Medical, of the Russian Campaign. By Moricheau Beaupré, M. D. Regimental Surgeon in the French Service. Translated by John Clendinning, A. B. and M. D. with an Appéndix by the Translator. 8vo. 10s. 6d.

Scottish Cryptogamic Flora, or Coloured Figures and descriptions of Cryptogamic Plants, belonging chiefly to the order Fungi; and intended to serve as a continuation of English Botany. Royal 8vo. Publishing in monthly numbers at 4s. each. By Robert K. Greville, LL. D. F. R. S. and F. A. S. E. &c. No. 42. just Published.

An Introduction to the Study of the Laws of Chemical Combination, and the Atomic Theory. Drawn up for the use of Students. By Edward Turner, M. D. F. R. S. E. Lecturer on Chemistry, and Fellow of the Royal College of Physicians, Edinburgh. 1 vol. 18mo. 2s. 6d.

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Dr J. E. Smith's Practical Treatise on Poisons, forming a comprehensive Manual of Toxicology, is nearly ready.

Botanical Sketches of the Twenty-four Classes of the Linnæan System, with Fifty Specimens of English Plants, taken from Nature, containing an Account of their Place of Growth, Time of Flowering, and Medicinal Properties, with many Plates, are announced.

A New Medical and Surgical Dictionary, including the collateral branches of Philosophy and Natural History, as connected with Materia Medica, is in the Press.

Dr Johns, F. L. S. has just ready for publication, Practical Botany, consisting of two Parts. The first Part contains an Introduction to the Linnæan System; the Second, the Genera of British Plants, in a tabular form.

EDINBURGH.

An Introduction to the History of Medicine, from the Earliest Period to the Present Time. By O. C. Wood, M. D. Extraordinary Member of the Royal Medical Society of Edinburgh, in one vol. 8vo.

No. II. of the Edinburgh Journal of Medical Science, will be Published on the 1st of April 1826.

NOTICE TO CORRESPONDENTS.

Owing to some wrong instructions regarding the time that Articles intended for the present Number were required to be sent to Press, the Editors regret, that several papers arrived too late for insertion. In order, likewise, to admit some Original Articles, they have been compelled to remit to the next Number the Analyses which they had drawn up of several Works. Among which are the following:

Mr Turner's Treatise of the Arterial System.
Dr Black on Capillary Circulation.
Conversations on the Physiological Medicine of Professor Broussais.
Treatises on the Use of the Stethoscope,—&c. &c.

EXPLANATION OF PLATE I.

a b c, the course of the three external incisions; some of the ulcerated portions of the skin.

The skin without the incision *c b* was sound, and afforded the chief covering for the wound, when drawn together.

THE

EDINBURGH JOURNAL

OF

MEDICAL SCIENCE.

PART I.

ORIGINAL PAPERS,

AND COMMUNICATIONS FROM VARIOUS CHANNELS.

I. PRACTICE OF MEDICINE.

ART. I.—*Clinical Cases.* By JAMES LOMAX BARDSLEY, M. D. Physician to the Manchester Infirmary and Dispensary, Lunatic Hospital and Asylum, and to the House of Recovery, &c. In a Letter to one of the Editors.

MY DEAR SIR,

I TRANSMIT you a few cases, selected from my Clinical Register, for insertion in the next number of the Edinburgh Journal of Medical Science, should you consider them of sufficient importance to meet the public eye. Allow me, at the same time, to offer you my best wishes for the prosperity of your new publication, and believe me yours, with much esteem,

JAMES LOMAX BARDSLEY.

10. CHATHAM STREET,
MANCHESTER.

CASE I.—*Hydrophobia Simulata.*

Emma Smalley, house-servant, aged 19, was admitted into the Manchester Infirmary on the 4th of July 1825, when the

following particulars were obtained from her.—She stated, that, about four months ago, a small dog kept by her master inflicted a severe bite on the inner part of her right leg. It appeared from her account, that the dog had for some time been unusually dull, and refused its food *. She had been in the habit of allowing the dog to sleep in her bed-room; and, on the evening in question, having occasion to use the chamber utensil after being in bed a short time, the dog seized her by the leg at the moment she put her foot upon the floor. She immediately applied salt to the wound, returned to bed, and followed her usual employment in the morning. She declared most positively that the bitten part had ever since remained in an irritable state, and would not completely heal though various local remedies had been employed for that purpose. At the time of her admission, a vesicle of the size of a shilling covered the wound, and she complained of severe pains shooting from it towards the groin, which were apparently much aggravated by the least pressure on the leg. Her articulation was impaired, which, she says, was quite perfect before the infliction of the bite. She seemed to experience an occasional sense of constriction at the breast, and the muscles of the throat were sometimes convulsively moved. She had no aversion to liquids, but swallowed them with some difficulty. Her head was at times very painful; eyes wild and staring. Her countenance exhibited some marks of anxiety; pulse was rapid and strong; tongue furred; skin dry; bowels constipated; breathing generally natural, though interrupted by occasional sighing. Catamenia had been absent for several months. Directions were given to open the bowels by the administration of a few ounces of the common senna mixture of the hospital, and to dress the wound night and morning with simple cerate. Mr Worthington (our intelligent and zealous house apothecary) was particularly requested carefully to watch the progress of the case.

On the morning of the 5th the patient seemed, on the whole, more tranquil, and expressed herself relieved by the free alvine discharge which followed the exhibition of the purgative mixture. The wound being still very painful, anodyne fomentations were ordered to be applied to the leg.—About 8 o'clock in the evening she became suddenly worse, and I was immediately made acquainted with the change. I found her in a state of great agitation, very anxious, and irritable. Her breathing was laborious and interrupted, and she complained of acute pain at the scrobiculus cordis, which was much increased by the pressure of the hand on the part. The fomen-

* The dog, she says, died on the day after it had bitten her.

tation had diminished the pain of the wound. The pulse was 100, full and hard. I ordered a vein to be opened in the arm, and, placing my fingers on the radial artery, I allowed the blood to flow until the pulse was much reduced both in frequency and strength. The quantity abstracted amounted to 22 ounces. The operation was scarcely concluded, when on a sudden, she was seized with a severe paroxysm. She threw her head forcibly backwards, extended her arms in a defensive position, and seemed to fix her eyes on some ideal object with horror and affright, violently exclaiming, " Take that dog away; good God! take that dog away." The pupils were contractile on the approach of a lighted candle. In about ten minutes the paroxysm was over. On being questioned as to the cause of her sudden terror, she denied having the least recollection of what had happened, and seemed even to have entirely forgotten that she had been bled; but, on endeavouring to convince her that the operation had just been performed, she hastily replied, " Oh, very well, very well, then I shall soon be better."

After witnessing this attack (though I felt persuaded that the disease under which the patient laboured was hysteria and not rabies canina), I thought it prudent to call an immediate consultation of the physicians and surgeons of the institution, which accordingly met at 9 o'clock P. M.: Present—Dr Lyon, Dr Carbutt, Messrs Ransome, Ainsworth, and Robert Thorpe. The wound was very carefully examined, and some of the faculty were strongly inclined to believe from its appearance that it had been intentionally produced by the application of some acrid substance. It was satisfactorily proved that she was not in a state of pregnancy, which, from the absence of the catamenia, was at first suspected to be the case. She did not experience a return of the paroxysm during the attendance of the consultation. She was directed to take a pill, with a grain and a half of opium immediately, and to have a shower bath early in the morning

6th, 8 o'clock, A. M.—Complains much of loss of rest, and of severe pain both of head and scrobiculus cordis. The nurse states, that she had several paroxysms during the night, similar to the one described in the report of last evening. Bowels rather confined; pulse 94, and full; countenance expressive of considerable anxiety. Prescribed,—Let six leeches be applied to the temples, and eight to the scrobiculus cordis; let her immediately take a scruple of the cathartic powder of the house, containing 15 grains of jalap and 5 of calomel; and, after the bowels have been freely moved, let her have a pill with two grains of musk, and an equal quantity of camphor, every second hour.—9 o'clock, P. M. Has derived great relief from

the leeches. Two copious alvine evacuations were obtained by the powder. Three of the pills only have been taken. Let an enema, with misturæ assæfœtidæ f. ʒ viij. et tinct. opii minim. xxv. be injected in the course of an hour.

7th, 9 o'clock A. M.—Has passed a much better night, having enjoyed some sound sleep for several hours. Her head is free from pain, and she can now bear the pressure of the hand upon the scrobiculus cordis, without experiencing much inconvenience. The wound, she says, is very painful, but it seems inclined to heal. Her countenance still exhibits symptoms of anxiety. Respiration tolerably free. The pills were ordered to be continued.—9 o'clock P. M. Has remained better throughout the day. She took some broth at the dinner hour with a relish, but had some difficulty in swallowing them. There has been no return of the paroxysms since the evening of the 5th. Bowels inclined to be costive. The common aperient enema of the house was ordered to be injected immediately.

8th, 10 o'clock A. M.—Continues better, and makes less complaint of the wound. Two copious stools from the enema. Her mind is quite calm, and she expresses a readiness to follow any plan proposed for her benefit. Pills ordered to be repeated.—9 o'clock, P. M. Has been restless during the day. About an hour ago she had a return of pain in the scrobiculus cordis, but it is now abated. Urine natural; bowels moved twice since last report. Let her take a draught with the tinct. opii f. ʒ ss.

9th, 10 o'clock A. M.—On visiting her this morning, I found that she had passed the former part of the night tolerably well; but about 3 o'clock she had another paroxysm, which was comparatively mild, and of short duration. I was informed by the nurse, that she had just been thrown into a state of great agitation by the barking of a little dog in the lobby, which had accidentally followed one of the patients up stairs. This sudden alarm had occasioned spasms in the throat and neck. She begged very earnestly that the dog might be confined. Let her continue the pills.—10 o'clock P. M. She seems much more composed, and has had no return of spasms since the morning. Her appetite improves; the pulse is of moderate strength; no alvine evacuation. A repetition of the pills was ordered during the night, and the aperient enema was directed to be administered immediately.

10th, 9 o'clock A. M.—Has rested well, and says she feels much better in every respect. The wound is now completely healed. One dark coloured stool after the injection. Let 4 grains of calomel be immediately taken in the form of pill, and, after an interval of three hours, 2 ounces of the compound senna mixture of the hospital. Let the antispasmodic pills be

discontinued until the bowels have been moved by the cathartic medicine.—9 o'clock P. M. Much the same as at the morning visit. Four copious stools during the day. Let the pills be now repeated.

11th, 10 o'clock A. M.—She has passed a very restless night, and complains this morning of violent pain of head, particularly in the frontal region. Her eyeballs glare, and her countenance indicates great uneasiness. She is, however, perfectly collected, and answers rationally to all questions. She is very peevish and irritable, and will not allow the pupils to approach her. Pulse is rapid, and of good strength. Let the pills be omitted, and 16 leeches applied to the temples.—10 o'clock P. M. Pain of head somewhat relieved by the leeches, but still severe. Pulse continues quick. Two copious stools during the day. Let the head be immediately shaved, and a blister applied to the nape of the neck.

12th, Blister has risen well, the pain of head is greatly relieved, and she is in every respect much better. Speaks now distinctly and coherently. Pulse 96, and strong; no stool during the night; urine free. Let the calomel pill and senna draught, as prescribed yesterday morning, be repeated.—9 o'clock P. M. Continues much the same as at the morning visit. Catamenia appeared in small quantity in the forenoon, but have now ceased. The pill and senna draught procured four copious stools. Let the anodyne draught be given at 10 o'clock.

13th, 10 o'clock A. M.—The apothecary informed me, that she was suddenly attacked last night about 12 o'clock with an acute pain in the left side, impeding respiration, and exciting violent palpitation of the heart. He very judiciously removed 16 ounces of blood from the arm, and applied a blister to the seat of pain. The blood is free from buff. She expresses herself as much relieved, being able this morning to effect a full inspiration with only slight inconvenience. Tongue rather white. Skin hot and dry. Let her have a pill with two grains of antimonial powder, and the one-fourth of a grain of opium, every third hour.—9 o'clock P. M. Continues better. Let her persevere with the pills.

14th, 10 o'clock A. M.—Remained free from pain during the night, and slept very comfortably. One stool this morning. Let the pills be continued, and the senna draught repeated immediately.—9 o'clock P. M. Is better this evening. Plentiful alvine evacuation after the draught. Let her continue the pills.

15th, 10 o'clock A. M.—Rested well through the night. Skin has become soft and moist. Appetite and strength improve. Let the antimonial pills be omitted, and an ounce and

a half of the acid infusion of columba of the hospital be taken three times a-day *.

16th, 10 o'clock A. M.—She remains better. Bowels rather confined. Let her continue the infusion, and repeat the purging draught.

17th, Three copious stools from the draught. Appetite much improved.

18th, Last night she experienced a return of pain in the side, which was removed by the abstraction of 14 ounces of blood from the arm. This morning she complains only of weakness from loss of blood, and is very desirous of being allowed to sit up for a short time during the day. Let her omit the acid infusion.—9 o'clock, P. M. She now complains of vertigo, with pain of forehead. Pulse stronger and more frequent; tongue rather white; skin hot. Two stools since the morning. Let four leeches be applied behind each ear, and let her take an ounce and a half of the common antimonial mixture of the hospital every fourth hour.

19th, Headach and vertigo much relieved by the leeches, and she has less fever upon her. Let her continue the mixture, and repeat the senna draught.—9 o'clock P. M. Head almost free from uneasiness. Draught produced two copious motions. Says that her feet feel cold. Let her use the pediluvium this evening.

20th, Slept well, and seems much better. Let her continue the mixture.

21st, No return of pain of head, and makes little complaint but of debility. Tongue clean; pulse 86, natural; skin moist; bowels loose. Let her continue the mixture.

22d, Was attacked in the night with severe pain of the left temple and right side, which now continues. Pulse has again increased in strength and frequency. One copious alvine evacuation. Urine free. Let her be bled immediately. 12 oz. of blood were abstracted, and she received sensible relief from the operation. Let eight drops of the tincture of digitalis be added to each dose of the antimonial mixture.

23d, The relief obtained from the bleeding continues. Let her repeat the mixture with the tincture of digitalis.

24th, Continues better.

25th, Improves daily. Pulse rather feeble; bowels regular. Let her take the mixture every sixth hour.

29th, The patient has been improving daily, but she now complains of nausea and pain of epigastrium. Let her omit

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* Formula Pharmacopœiæ in usum Nosocomii Mancuniensis:
℞ Infus. columbæ ℥oj.
Acid. sulphuric. dilut. f. ℥ j.—M.

the antimonial mixture, and resume the use of the acid infusion as before prescribed.

2d August.—She is so much recovered that I have allowed her to sit up for several hours during the two last days. Her countenance is pale, and she is still feeble; appetite better; bowels regular. Let her continue the infusion.

5th, She gains strength rapidly, but complains of a return of pain in the seat of the former wound of the leg, which is slightly inflamed. Appetite good; bowels open. Let the infusion be continued, and an anodyne fomentation applied to the wound.

6th, She states that the wound was so painful during the night, that she could not sleep. Its surface is again covered with a large vesicle similar to the one mentioned in the history of the case at the period of her admission. Let the remedies be continued.

7th, The vesicle has burst, and the excoriated surface presents a healthy appearance. She is in every other respect well, and takes the food allowed her with a relish. Pulse calm; tongue clean; bowels regular. Let calamine ointment be applied to the sore.

9th, The sore is nearly healed.

11th, A little redness of the part only remains, and the patient's general health is so far established, as to admit of her being discharged at the first meeting of the weekly board.

13th, On this day she was to have left the house; but, at the morning visit, she complained so much to Mr Worthington of a return of severe pain in the wound, which was again inflamed, that he allowed her to remain in the house until he had informed me of the circumstance. Being unable to account for this sudden and unexpected recurrence of inflammation in the part so recently healed, I began to suspect that our patient had intentionally irritated the wound by friction, or the application of some acrid substance. I questioned her very strictly on this point, but she wept bitterly at the thought of being suspected of imposition, and denied the accusation with the greatest assurance and pertinacity. As the sore remained in an inflamed state for several days, and shewed no disposition to heal, I determined on adopting some plan to prevent the patient from continuing the irritation by the use of any external means. On the suggestion of Mr Worthington, the joiner was ordered to make a box capable of containing the leg, and sufficiently tight to prevent her from touching the sore. The leg was put into the box on the 20th, and secured by a padlock, the key of which was given to the apothecary.

22d, The wound is less inflamed, and begins to heal. She says that the box occasions her much pain in the leg, but, on

examination, there does not appear to be any real cause for such complaint.

24th, The wound is completely healed. The nurse informs me that one of the patients has more than once observed Smalley attempting to introduce a long pair of scissors, and the bone of her stays, on the inside of the box, for the purpose of renewing the irritation of the sore. Her general health continues good. The apothecary was directed to keep her leg in the box until the day of her discharge from the hospital.

26th, The leg remains perfectly sound. Ordered to be discharged at the first meeting of the board.

28th, The nurse states that she came into the ward about an hour ago, and found Smalley in an apparent state of syncope. She ran instantly to acquaint Mr Worthington with the circumstance, but the patient had contrived to recover before he reached the ward. On asking her if she could assign any cause for this sudden fainting fit, she said that it was owing to a copious vomiting of blood with which she had been seized on bending to reach the chamber utensil. I was surprised to find her with a pulse 96, and of good strength, a countenance rather florid, and the extremities warm. The quantity of blood said to be discharged from the stomach amounts to nearly two pints, and resembles an admixture of blood and water, with a few coagula at the bottom of the vessel. Being convinced of the improbability, not to say impossibility, of an individual losing so much blood from any part of the body, without a sensible effect being produced on the pulse, I was anxious to detect the imposition; and on inquiry, I found that the apothecary had ordered some leeches to be applied to the temples of a patient in the bed next to that of Smalley, and that she had been assisting the nurse in fomenting the leech bites, and bringing clean water. There can be little doubt but that she put the bloody water into her chamber utensil, and feigned vomiting. She again denies the accusation with the greatest effrontery. Let her be carefully watched.

31st, She pretends to be unable to sit up from extreme debility, and refuses her meals. Let her be removed from the hospital in a sedan this afternoon.

I have since heard that this patient was quite well in a day or two after leaving the hospital, and that she speedily exchanged the comforts which the sick experience in that institution for the misery of imprisonment, owing to some theft of which she was found guilty.

Remarks.—I have entered into rather a minute detail of the symptoms, progress, treatment, and termination of the above case, from a belief that it is important in several respects, but

chiefly in illustrating the occasional resemblance between hysteria and hydrophobia, as well as some of the artifices employed by unprincipled patients, in order to deceive their medical attendants. That part of the history given by this girl which relates to the dog, was undoubtedly false; but as, at the time of her admission, I had no just reason for suspecting her veracity, I was induced to solicit the opinion of my colleagues as to the nature of the affection under which she laboured, and the most judicious mode of treating it. The paroxysms were very similar to those experienced by hydrophobic patients, and I am inclined to believe that almost any practitioner, who had never witnessed a genuine instance of rabies canina, on being summoned to attend Smalley in one of her paroxysms, might readily have supposed that she was afflicted with that horrible malady, and more particularly, if the circumstance of her having received a bite from a supposed rabid animal had been previously mentioned to him. She complained of severe pain in the wound, which has been considered by Cælius Aurelianus *, Sauvages, † Troillet ‡, Labonnardiere ‖, and some other writers on rabies canina, as one of the earliest symptoms of that affection. The vesicle covering the feigned bite resembled the bullæ which characterise Pompholyx diutinus. She had no dread of liquids, but experienced some difficulty in swallowing them. This symptom sometimes originates from the terrors of imagination §. Dr Ferrier has related a case of this kind. A man and his wife had been bitten by a dog, which they supposed to be mad; the woman thought herself well, but the man fancied that he had uneasiness in his throat, and that he could hardly swallow any thing. "By a little indulgence of his fears," (says Dr Ferrier), "this might have been converted into a very clear case of hydrophobia, and the patient would probably have died."

In hysteria this difficulty of swallowing is not unfrequently present. I had a female patient a short time ago, who was subject to severe hysterical paroxysms, and I have repeatedly seen her whole body thrown into the most violent agitations on attempting to swallow liquids.

It has been erroneously supposed, that persons labouring under the horrors of canine madness have a dread of liquids; but

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* Præpatitur enim ea pars, quæ morsu fuerit vexata, unde initium denique passionem sumere nemo negat.—De Morb. Acut. lib. iii. cap. xiv. p. 202.

† Dissert. sur la Nature et Cause de la Rage, p. 52.

‡ Nouveau Traité de la Rage, p. 59–70–74.

‖ Dissert. sur la Rage et l'Hydrophob.

§ Medical Histories and Reflections, p. 46.

several cases on record prove, that they have viewed fluids with indifference, and even asked eagerly for drink, so long as sense remained. Their dread is of the act of deglutition, for, on attempting to swallow either solids or liquids (especially the latter), severe convulsions about the throat, and stricture at the breast, instantly ensue, and produce the most indescribable distress. In the case of Thomas Pearson, related by Dr Marshall, it is observed, " that, so far from having any horror of water, the sight of it seemed to please him, for he said he had great thirst, and the simple contact of drink, provided no effort to swallow was exerted, was a solace to him *." The symptoms of tetanus are sometimes so strikingly similar to those of rabies canina, and, indeed, so strong an analogy exists between the two diseases, that some authors have considered the latter affection as nothing more than a species of tetanic affection. Several cases of traumatic tetanus have been recorded, in which, had the symptoms supervened to the bite of a supposed mad dog, instead of the injury being occasioned by a splinter of wood or a fracture, there would have been considerable difficulty in deciding whether the patients suffered from tetanus or rabies canina.

The globus hystericus, or sensation of a ball gradually ascending from the stomach to the throat, palpitation of the heart, and a copious flow of pale-coloured urine, which form prominent symptoms of hysteria, were not at any time present in the case of Smalley.

The hysterical disposition was more connected with irregularity of the menstrual function, than any disorder of the stomach or bowels.

It is proper to notice the imposition so artfully attempted by our patient. " Diseases are generally feigned †," Dr Beck remarks, " from one of three causes—fear, shame, or the hope of gain ;" but my patient must have been influenced by some other motive; for she had nothing to fear, nothing to be ashamed of, (except attempting to deceive) and no prospect of gain was presented to her. Indeed, I have been unable to ascertain her real motive for wishing to impose upon me. One would imagine that it could not be very agreeable to remain confined in the ward of an infirmary, to be obliged to take medicine, and to submit to blistering and bleeding. I can only attribute her disgraceful conduct to that same depravity of heart, and want of moral principle, which led her to the commission of a more heinous crime, shortly after her discharge from the hopital. An instance something similar to the one just described, is mentioned by Dr Hennen, in his valuable " Principles of Military Sur-

* Morbid Anatomy of the Brain in Mania and Hydrophobia, p. 37.

† Medical Jurisprudence, p. 1.

gery," (p. 455). "I had, some time ago," he remarks, "a case in a recruit, reported to be Pompholyx diutinus, and resembling that species of bullæ, in a very remarkable degree. After several weeks, Dr Bartlett, of the 88th regiment, into whose charge the man was at last transferred, detected a shining particle of the powder of cantharides adhering to an unctuous dressing, which he had purposely applied loosely to the limb, in order that the patient might not be prevented from managing his case in his own way." Ulcers, we know, are often intentionally produced. Instances of counterfeited hysteria sometimes occur, and the paroxysm is often imitated so exactly, (Dr Hamilton observes *,) "as to deceive common observers." Hæmatemesis has been feigned on the plan adopted by my patient, viz. by pouring real blood into the chamber utensil; also by drinking blood, and then vomiting it in the presence of spectators. The detection of impositions of this kind is by no means difficult; for such sudden discharges of blood, when real, are attended with symptoms that defy close imitation †.

The officers of public institutions are always exposed to the artifices of the idle and the base, who may wish to answer some purpose, by feigning disease: hence it is their duty to guard against such deceptions, which, if successful, only serve to encourage others in similar attempts, and to diminish the extent of that usefulness which it is the object of the benevolent supporters of public charities to promote.

Case II.—*Effects of Excessive Salivation.*

Catherine Duffy, aged upwards of 60, admitted into the House of Recovery on the 14th of September 1825. Has been ill in the workhouse a fortnight; during which time she has been attended by the surgeon of that institution. She says that her complaint commenced with a coldness and shivering, which was succeeded by heat. She has suffered much from pain of epigastrium during the last three days. Head free from uneasiness; abdomen rather tense. Skin hot and dry. Throat sore; tongue swollen; gums very red and painful. Copious flow of saliva from the mouth. Mercurial fetor of breath so strong, as to render a near approach to her extremely disagreeable. Pulse 86; rather feeble. Bowels confined. Appetite indifferent. Urine scanty and high coloured.

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* Observations on the utility and administration of Purgative Medicines, p. 132.

† On the subject of simulated diseases, Mahon, Foderé, Hennen, Beck, Faris and Fonblanque, and Blatchford, may be consulted with advantage.

Admoveantur epigastrio hirudines octo.
℞ Misturæ antimonialis *,
——— ammoniæ acetatis, utriusque uncias sex.—Misce.
Sumat unciam quartis horis.
℞ Pulveris rhei grana octo,
——— jalapæ grana sex.
Sit pulvis statim sumendus. Utatur † gargarismate sodæ boratis.

16*th*, Pain of epigastrium much relieved by the leeches. One copious alvine evacuation from the powder. Complains chiefly of mouth. Salivary discharge continues profuse.

Sumat statim haustum olei ricini, cum olei drachmis sex; imponatur faucibus externis emplastrum cantharidis; continuentur mistura diaphoretica et gargarisma.

17*th*, Makes no complaint but of her mouth. Blister has risen well. She can scarcely be induced to use the medicines prescribed for her. Takes a little broth. Pulse 76; and feeble. Two stools from oil. Countenance anxious.

Repetantur haustus, mistura, et gargarisma; habeat vini rubri *Port* dicti, uncias sex in dies.

18*th*, Continues languid, and suffers much from mouth. Throat easier since the blister. Has had three scanty stools during the night. Pulse still feeble.

Repetantur remedia.

19*th*, Has passed a very restless night. Talked much in her sleep. Has some delirium; with a low and feeble pulse. Eyes sunk; tongue dry; bowels free.

Bene lavetur caput, prius rasum, spiritu vini camphorato; admoveatur inter scapulas emplastrum cantharidis; intermittantur haustus et mistura; continuentur gargarisma et vinum.

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* *Mistura antimonialis.*
℞ Aquæ menthæ viridis, f℥xiv.
Liquoris antimonii Tartarizati, f℥ss.
Tæ. opii minima, xxx.
Spiritus Lavandulæ compositi, f℥ij.
Syrupi, f℥ss.—Misce.

Mistura ammoniæ acetatis.
℞ Aquæ menthæ viridis, f℥vj.
Liquoris ammoniæ acetatis, f℥ij.
Syrupi, f℥ij.—Misce.

† *Gargarisma sodæ boratis.*
℞ Sodæ Boratis, ℥ij.
Mellis rosæ, ℥iss.
Aquæ ferventis, ℥vj. Misce.

9 o'clock, P. M.—Seems to be sinking very rapidly. Pulse indistinct; delirium almost constant.

Cataplasmata sinapeos plantis pedum applicentur; sumat misturæ moschi unciam unam omni hora.

20*th*, She died at an early hour this morning.

Dissection.—The body was opened, about thirty-eight hours after death, by our intelligent clerk, at the House of Recovery, (Mr Boardman, surgeon), when the following morbid appearances were observed.—Countenance much changed; face edematous.

Head.—The dura mater was so firmly attached to the skull, that it required the united force of Mr Boardman and myself to detach it. Its structure was perfectly healthy. The vessels of the pia mater were somewhat distended with blood; no effusion between the membranes; but the ventricles contained rather more than two ounces of serum. Cerebrum firm; when sliced with the scalpel, the surfaces exhibited numerous bloody puncta. There were several small vesicles on each choroid plexus. Cerebellum sound.

Mouth and fauces.—The tongue was red, ulcerated, and tumefied. The velum pendulum palati, and posterior portion of the fauces, were very florid. Gums red, and deeply ulcerated. Salivary glands much enlarged.

Thorax.—In the right cavity of the chest there were six ounces of serous fluid, with threads of coagulable lymph floating in it. In the left, the pleuræ adhered to each other so firmly, that it was impossible to separate them without laceration. Right lung sound, but the left exhibited marks of disease. In the upper lobe there were two fibro-cartilaginous cicatrices, and the inferior lobe presented a perfect specimen of hepatization. No tubercles were discovered in either lobe. Heart and pericardium both natural.

Abdomen.—Stomach sound. Liver natural, gall bladder moderately filled with bile. On looking for the spleen we were surprized to find a small body, which was at first considered merely an appendage of that viscus; but on further careful examination, no other spleen could be detected. Its structure was perfectly healthy. Its length was two inches and a half, and its weight one ounce and a quarter. The other abdominal viscera were free from disease *.

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* At one of my clinical lectures, I shewed this viscus, and the specimen of cicatrized lung, to Mr William Henry and Mr Kay (at present in Edinburgh), and the late Mr Runcorn, who were three of our most attentive and diligent pupils at the Hospital.

Remarks.—The interest of the above case consists chiefly in the morbid appearances presented by dissection. The patient, I am of opinion, sunk from the effects of excessive salivation. She had been using some preparation of mercury whilst in the workhouse; for, according to the report taken on the day of her admission into the fever wards, "her gums were red and ulcerated, and there was a copious flow of saliva from the mouth." The case affords an example of the danger of administering mercury in large doses to elderly persons. I have before witnessed the fatal consequences of such practice. A knowledge of the fact, that, in some constitutions, a very small proportion of this powerful remedy is capable of producing the most violent effects on the system, and that its action, like that of digitalis, often remains for a time concealed, and then appears suddenly with accumulated energy, should lead practitioners carefully to watch its operation in all cases in which its use may be indicated, and more particularly when prescribed for individuals of advanced age. The first morbid appearance worthy of notice, is the cicatrized state of the upper lobe of the left lung. This patient had in all probability been subject to pulmonary disease at a former period of life, but this fact was not ascertained, as she had no affection of the chest whilst in the house. According to Laennec, these cicatrices are by no means uncommon. "* Je puis assurer," he observes, "que quiconque se livrera d'une manière assidue à des recherches d'anatomie pathologique dans un hôpital ne passera pas six mois sans rencontrér plusieurs fois des cicatrices et des fistules pulmonaires." He considers this development of cartilaginous tissue to be one of nature's efforts to repair the injuries produced by tubercular excavations. He also notices the occasional presence of pulmonary cicatrices, without tubercles, as was the case in the above dissection. Very small is the number of phthisical patients whose disease is arrested by this curative process of nature, compared with the hundreds who daily fall victims to the destructive ravages of this fatal malady.

The very diminutive size of the spleen, as noticed in the dissection, is more curious than important, though it seems to involve the following physiological consideration, viz. Could an organ, so much less than natural, perform those functions (whatever they may be) for which it was destined? That this was the case, we have every reason to suppose, since the patient never exhibited any symptom of splenic disease during life, and had enjoyed a good share of health previous to the attack of fever for which she came under my care. It would be idle to reason about the functions of an organ, the real use of which remains

* De l'Auscultation mediate, tome i. p. 102.

unknown. The increased bulk of the spleen has been noticed by many pathologists, but its diminished size has been but rarely mentioned. Haller remarks, speaking of the spleen, "Rarius est nimis parvum reperiri; fuit tamen, duabus unciis non major in homine cui amplissimus erat ventriculus *." Spigelius observes, that a small spleen is healthier than a large one, unless the bulk of the former be very much reduced †. When the spleen is very small, the stomach is mostly found enlarged. I am not acquainted with any dissection on record, in which this viscus has been found so reduced in size as in the case above detailed, though my very excellent friend Professor Monro informed me some time ago, when in Manchester, that he had once accidentally met with a spleen almost as small, in a subject brought for anatomical demonstration.

(*To be continued.*)

ART. II.—*Upon the causes of the Insalubrity of the Air in the vicinity of Marshes communicating with the Sea.* By Sig. GAETANO GIORGINI, of the Academy of Lucca, &c. &c ‡.

MAN perhaps excels all other organized beings, in possessing a nature which adapts itself to all circumstances and all climates. He lives and multiplies in the midst of the burning sands of Africa and the eternal frosts of the polar regions; yet still he finds, in the insalubrious air of some countries powerful causes of destruction, derived even from a soil, the temperature and fertility of which would, under different circumstances, have insured to him well-being and ease.

Such is, however, the tendency of the species to make every accessible point of land the object of its peregrinations, and even its calamities, that, in our ancient abode of Europe, it is rare to meet with a space, however inconsiderable it may be, which, notwithstanding its insalubrity, is not inhabited by some hundreds of living phantoms, devoted from their birth to a languishing life, and to a premature death.

It is known that the causes of this insalubrity are of different kinds, the principal of which ought to be sought for in the bad

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* Elementa Physiologiæ, p. 395.

† Semper tamen minor majore melior est, nisi admodum parvitate peccet, quod et ipse annuit Aristoteles, lib. iii. Histor. de Animal. cap. xvi. De Humani corporis fabrica, lib. viii. p. 240.

‡ Read at the Royal Academy of Sciences, 12th July 1825.

quality of the waters, in the nature of the soil, as well as of the vegetables which cover it, and in the deleterious exhalations derived from its surface; also more frequently still in the vicinity of stagnant waters, and in the composition of the bed in which they are contained.

Sometimes these causes disappear before industry. The destruction of forests, the cultivation of lands, and, above all, draining, eventually carry animation and life to regions long deserted and inhospitable. For this reason, it is of the utmost consequence to the human race that facts of this nature be described to the learned with a view to their explanation, and to governments, who can so easily turn to the good account of the people experiments, the tendency of which is salutary. With this view, we are about to occupy ourselves with rapidly tracing the history of the means employed, in a district under our eyes, for the purpose of rendering more healthy the air of a province of Italy. It is to be hoped that such a striking example may not be lost to humanity!

We have said, that it is in the neighbourhood of stagnant waters that an insalubrious atmosphere is most frequently met with; but we ought also to add, that there is no observer, however inattentive he may be, who must not have remarked that this cause is singularly modified by a crowd of circumstances which it is often difficult to investigate. The neighbourhood of marshes is not always insalubrious, nor is its insalubrity always in the same degree. This is a fact which has long been acknowledged, and which should have sooner excited the learned to prosecute an inquiry into the causes of this difference.

One of these causes ought particularly to engage our attention. Vitruvius, in his *Architecture*, book. i. chap. iv., counsels us not to build a city in the neighbourhood of a marsh, when the level of it is at no time more elevated than that of the sea; for, as he adds, the salt waters introduced during a storm or great tide, cannot flow out when these causes have ceased to operate.

Gul. Piso (Hist. Nat. et Med. lib. i. p. 9.), says expressly, "Non omnia loca paludosa et lacustria insalubria esse, monumenta veterum quoque confirmant in Italia, ubi insignia quædam et fertilissima habitacula paludibus proxima incredibili tamen salubritate fruebantur; propterea quod commercium haberent cum mari, et motione perpetua non paterentur stagnantes putrescere."

Silvius, Donatus, Pringle, Boërhaave, Lancisi, and some others, have also more or less clearly given us to understand, that it is principally from marshes in which the waters of the sea mix with fresh waters, and in which this mixture remains a greater or less time exposed to the summer sun, that the most deleterious mi-

asm are exhaled. As illustrative of this fact the salt marshes of the south of France may be cited, also the fens which border upon the coasts of the Mediterranean, in the kingdom of Naples, in the States of the Church, or in Tuscany, the environs of which, abhorred and depopulated, form a striking contrast with the animation, the fertility, and the population of other provinces of the interior, situated near marshes by no means less extensive.

It is, then, from nothing more than rude observations, which were directed to these localities, that this truth, which at first had been merely anticipated,—which had been announced without direct proof—at length necessarily burst forth, sanctioned by the confirmation of experience: *The presence and mixture, more or less prolonged during the summer, of the waters of the sea in the marshes of fresh water, constitute in the climate of Italy the principal cause of the malady accounted so terrible, which is well known under the name of* MALATTIE DI CATTIVA ARIA.

I have said that this truth had been announced without any direct proof; for, in fact, the mere insalubrity of the air of marshes where the mixture had taken place, does not of itself authorise us to make any such conclusion. For, if we would establish with precision, that, of these two facts, the last was the consequence of the first, it would be necessary to stop and renew successively the mixture, and thus to assure ourselves that the separation of the fresh and salt waters would be followed by a salutiferous purification of the air, and that the mephitic and pestilential qualities would reappear as soon as this separation was intermitted. All this has, however, been done in our days with complete success, and it is of this interesting experiment that I am about to relate the particulars.

To the south of the Ligurian Apennines (see the map, Plate IV.), lies a marshy region, bounded on the west by the Mediterranean, for the length of nearly twelve Italian miles; to the south by the Serchio; to the east by the extreme bastions of the Apennines, and to the north by the Frigido, a torrent which rises near the foot of the Apennines, in the state of Massa de Carrara, and throws itself into the sea after a course of from three to four Italian miles. The extent of this plain from the sea to the foot of the mountains and of the hills which border it, is from two to four miles. It is traversed from east to west by torrents which rise at a little distance from the mountains, and which either discharge themselves in the morasses, or directly into the sea.

Torrents of the last description comprehended the Serchio and the Frigido, the river Camajore, and the river Pietra Santa, or

Fiumetto; they have no connection with the morass, farther than dividing it into three separate basins.

This marshy plain may, with all probability, be regarded as formed by the sands carried along by the Arno and the Serchio into the interior of the gulph, which extended formerly to the foot of the mountains at the east. The bottom of the marsh, in fact, consists of sand similar to that of the coast, which here forms a sort of embankment, that is only elevated a few feet above the level of the sea, towards which it sinks by a very gentle depression. What renders this conjecture the more probable is, that the deposits of sand carried by the Arno and the Serchio are continued up to our own time, and augment every year from four to five fathoms the natural breadth of the bank of which we have spoken, so that the sea appears to retire every year proportionally to this increase of breadth. It may also be easily conceived how the Arno and the Serchio, in advancing their embouchures farther out into the sea, in the midst of their own alluvion, have formed upon the coast that particular bank which bounds the morass of the lake of Massaciuccoli, of La Torre and Motrone, and of the lake of Perotto. It is probable that these low flats had been originally nothing more than a continuous marsh, which was afterwards divided into three basins (already named) by the alluvion of the river of Camajore, and of the river Pietra Santa. These currents, like the Serchio and the Frigido, have opened their beds through the midst of the gravel and the vegetable earth which they had carried with them from the mountains, and with which they had covered over, by a bed more or less thick, the contiguous low flats.

The waters collected from rains, as well as from sources comparatively little abundant, which flow into the three basins before mentioned, discharge themselves slowly into the sea by natural or artificial canals, which pierce the banks of sand that bound the coast. The basins for which these canals are designed may be stated as follows: 1st, For the principal basin of the lake of Massaciuccoli, the moat of La Burlamacca; 2dly, For the smaller ponds of the seas of Latorre and of Motrone, the moats of Motrone and that of Tonfalo; 3dly, For the little lake of Perotto, and for the marshes surrounding the moat of Cinquale. The level of the stagnant waters thus named, is scarcely superior to that of the sea during its ebbing, and is inferior to it during its flowing; at the same time, the tides are very inconsiderable in this part of the Mediterranean. Under these circumstances, before the hydraulic works of which we are about to speak were constructed, the surface of the sea being elevated by the rising of the tide, or by some other cause, induced the waters belonging to the moats of Burlamacca, Motrone, Tonfalo and Cinquale, to run in a contrary direction; and, except when the waters of the marsh were more than

usually swollen by rains, those from the moats introduced themselves by these means into the basins, which they overflowed even to the foot of the mountains. Every time, likewise, that a *libecciata* [a violent wind from the south-west] prevailed, the sea became stormy, and propelled with violence its waves into the interior. The mixture of fresh and salt waters, which, of course, resulted from the combined operations of these causes, and which, in summer, was seldom, or very slowly corrected by new supplies, became corrupted, and spread all around the most deadly infection.

I shall not stay to describe the state of the population of those parishes which were situated nearest to the marshes. Viareggio consisted then of nothing more than an assemblage of a small number of fishermen's cabins, which were placed near an ancient tower, that had been destined by the unphilanthropic spirit of the age for a prison, where individuals condemned to the galleys were immured. The effects of the bad air are but too well known. They were here annually produced with all their horrors. The natives, who were few in number, and constantly attacked by complaints of the liver or the spleen, presented during the whole year the afflicting spectacle of a population of sickly children, and of men contending with this disease, among whom old age was unknown. At the expiration of each summer, they became afflicted with the most dangerous maladies. Those who, by undergoing the probation of an intermittent fever of some months in duration, which only yielded to bark and the return of winter, got quit of this attack, might esteem themselves happy. In vain did the greater number of the inhabitants, by remaining upon the hills, or in the interior of the country, and only descending to the plain for the purpose of undertaking the labour which was indispensable for its culture, attempt to escape an influence still more mortal at night: for fever and death did not the less attend them to their miserable dwellings. To such a crisis had this calamity arrived, that the culture of the olive trees with which these rich hills were covered, was abandoned almost entirely to the hands of strangers, who were summoned during the winter to fertilize a land to which fertility itself was a misfortune, since it merely served as a bait to allure new victims to the soil. And if the natives themselves could not escape these terrible scourges, what evil fortune might we not expect should befal the passenger or imprudent traveller, who had so far forgotten himself, as to remain during an entire night in these infectious districts: death was the inevitable consequence of his imprudence.

Such was the state of this country previous to the year 1741, an epoch when a partial purification of the air was attempted. I have not overcharged the colours of the picture which I have drawn; the public registers record it;—the remembrance is still

too recent;—the last traces of it are scarcely effaced;—I have said nothing which is not a well known, incontestible truth.

It was in 1714 that the engineer of Bologna, Gemignano Rondelli, proposed to attempt a separation of the sea waters. In 1730, the celebrated Eustache Manfredi renewed the same proposition. In 1736, Bernardino Zendrini, a mathematician of the republic of Venice, summoned to Lucca by his government, insisted upon the necessity of constructing a dam near the embouchure of the Burlamacca,—the moveable gates of which were to be so contrived, that they might shut, like the suckers of a pump, whenever the waters of the sea became elevated by tides or tempests, and, on the contrary, that they might be open for the retreat of the waters running out from the morass, whenever their level had become so much higher than that of the sea, that the force of the interior waters was likely to prevail.

The republic, anxious to mitigate so many evils, ordered, in 1740, the construction of this work, which was accordingly finished in 1741. The most complete and unhoped for success crowned this enterprise, the utility of which must, until then, have appeared problematical.

In the year subsequent to this construction, there did not reappear either at Massaciuccoli, at Quiesa, or in the other places less contiguous to the basins of Motrone and Perotto, those terrible maladies which periodically made their desolating visits.

Those inhabitants whose condition was not irremediable, were restored to health and strength, and were at length entitled to entertain the hope of a life more supportable and less precarious for them and their posterity, to whom the fertility and extent of the ground which they tilled promised an easy and tranquil existence. Since that time the population has rapidly increased, and continues still in a progressive state. Viareggio is become a very considerable city, and all suspicion of its insalubrity has so far disappeared, that the first families of the city of Lucca have long ago built palaces there, to which they resort in the summer months, in order to breathe the wholesome sea-air, and to resign themselves to the pleasures of the baths and of society.

But if any doubt can still remain, though in the most sceptical minds, regarding the cause of this unexpected change, the recital of two unhappy events cannot fail to remove them.

In the summers of 1768 and 1769, Viareggio, and the parishes adjoining the lakes of Massaciuccoli, were again ravaged by sickness. It appears from the registers, that Viareggio, out of a population of 1330 persons, had in two years 170 deaths, that is nearly 1 in 15 each year; while, in the following year, there were only 32 deaths, that is about 1 in 40. In this instance, the cause of the epidemic complaint was soon ascertained and successfully obviated: the gates of the dam had been da-

maged, and had permitted, in the years 1768 and 1769, the entrance of the sea-water. Upon this discovery they were repaired.

A similar calamity again took place in the years 1784 and 1785. The state of the gates not being looked after, the number carried off by death in 1784 was 92 out of a population of 1898 inhabitants; that is to say, the deaths amounted to about 1 in 20. In 1785, there died 103 persons out of 1834, or about 1 in 18. We also read in the reports sent up to Government, that, in the year 1784, Viareggio, possessing the population before stated, amounting to 1898 inhabitants, had no fewer than 1200 sick. But this epidemic attack, like that of 1769, immediately ceased, when the wear and damage sustained by the gates of the dam were sufficiently repaired.

After so decisive an experiment it was rational to expect, that similar works applicable to the basins of the waters of Motrone and of the lake of Perotto would be executed without delay. But the event was unavoidably otherwise; and the unhappy inhabitants of the plains of Camajore, of Pietra-Santa, and, above all, of Montignoso, a little town which felt with even greater severity the deleterious influence of the marsh of Perotto, were destined to languish for a still longer period, in a state which became the more deplorable, from the reflection that it could be so easily ameliorated.

It was not before the year 1804, that the complaints of these sufferers determined the democratic republic to take some measures in their favour. This long delay, if not absolutely justifiable, can at least be explained by the impediments, which the necessity of an understanding with the Tuscan Government on the subject of some differences regarding the jurisdiction of the moats of Motrone and of Cinquale, necessarily occasioned.

The Chevalier Matteuci, who was then one of the most distinguished citizens of the state of Lucca, was sent to Florence in 1805, being commissioned in this affair to come to some arrangement. He had, with the zeal of a true philanthropist, fulfilled the end of his mission, when new political convulsions intervened, to put a stop once more to the benefit which was anticipated.

The state of Lucca having lost the republican form of government, M. Matteuci became the first minister of the principality which succeeded to it, and preserved this office until the year 1817. He ceased not to employ his interest in support of the just complaint of the inhabitants of Montignoso. The deplorable state of their country may be found described in his report of the 13th April 1808, when, upon some delay having taken place in the construction of the proposed dam upon the moat of Cinquale, he proposed as a provisional measure, the forced removal during the summer, of the population which remained. We proceed to transcribe his words, because they convey an idea of the entire extent of the evil.

" In the mean time," he states, " I will employ myself in a project that is in agitation for the people of Montignoso during the approaching summer, in which season will unavoidably be renewed the deadly sickness, that in the course of a few years has destroyed a great part of that unhappy population. But notwithstanding the recent remembrance which the Montignosians entertain of a spectacle the most desolating, notwithstanding the imminent danger which subsists of renewed destruction, that measure will not be esteemed by them a palatable one, by which they are constrained to abandon, for a length of time their roofs and their cottages, or, to speak more correctly, their graves. They will, however, one day bless the hand that has compelled them to receive a benefit, which at this instant they do not value sufficiently."

This measure which was adopted, produced in the years 1809, 1810, 1811, the best effects. It became useless in 1812 by the completion of the dam upon the Cinquale, the construction of which had been first undertaken in 1809. In the following years, the air of Montignoso was as healthy as that of Viareggio. The salutary influence of this construction began likewise to be felt in the communes of Querceta, Pietra-Santa, and Vallechia, although to a less degree in the places nearest the ponds of Motrone. It was therefore evident, that, in order to complete this system of rendering the atmosphere salubrious, it would be necessary to furnish with dams the moats of Motrone and Tonfalo. M. Matteuci, who was still in office under the provisional Austrian Government, and whose name ought to be associated with every useful measure that was done at this period, was unwilling to leave a work imperfect in which he had taken such a considerable part. His authority powerfully influenced the resolution adopted by the municipalities of Camajore and Pietra-Santa, that these works should be executed at their expence. The dam of Motrone, which had been undertaken in 1818, was finished in the year 1819, while the less interesting one of Tonfalo was likewise completed in 1821.

Since that time, all maladies attributable to a pernicious atmosphere have in every quarter ceased; so that the salubrity of the air is no longer exposed to danger, except from accidental circumstances, as, from a failure in the maintenance, or neglect in overlooking the dams, which the natives ought ever to consider as their true palladium.

I annex a Table of the progressive state of the population in such parishes as have the most felt the influence of the dams constructed at the different epochs pointed out. It affords the most complete proof that can be given, of the present salubrity of the air. Other parishes farther removed from this ancient focus of infection, have likewise to boast of an increase

of population, which has been generally proportional to the degree of malign influence possessed by the atmosphere, before the construction of the dam.

Statement of the Population of the circle of Viareggio.

Parishes.	Number of Inhabitants in the years							
	1733	1744	1758	1776	1782	1809	1822	1823
Viareggio, -	330	459	953	1517	1762	2914	4165	4267
Bargecchia, -	231	279	266	287	324	434	481	491
Bozzano, - -	130	175	276	414	431	661	753	779
Corsanico, -	266	315	359	413	443	492	572	591
Massarola, -	60	„	„	„	359	545	746	766
Mommio, -	55	48	65	91	96	118	164	170
Pieve a Elici, -	83	112	131	153	170	321	349	357
Quiesa, - -	131	152	300	421	„	452	517	529
Stiava, - -	154	142	201	319	349	593	641	649
Torre del Lago, -	„	„	„	„	221	387	545	566
Montigiano, -	169	183	224	194	227	223	242	243

The number of inhabitants corresponding to the years marked („) has not been ascertained.

It results from this statement, that the population of the circle of Viareggio, composed of eleven parishes as before specified, which had, in 1733, 1509 inhabitants, was found to consist, in the year 1823, of 9408 inhabitants; or, in other terms, the number of inhabitants in this interval of 90 years has nearly doubled itself every 36 years.

State of the Population of Camajora in the

Years -	1744,	1758,	1776,	1782,	1822,	1823.
Inhabitants -	3680,	3980,	4084,	4252,	5043,	5075.

Increase in 79 years, 1395 inhabitants.

State of the Population of Montignoso in the

Years -	1733,	1744,	1811,	1813,	1823,	1824.
Inhabitants -	865,	921,	734,	763,	1241,	1320.

Increase since the construction of the dam of Cinquale, from 1811 to 1824, 586 inhabitants.

State of the Population of Pietra-Santa, and of the neighbouring Parishes of Querceta, Vallechia and Capella.

	In 1819	In 1824
Pietra-Santa, -	5581	6669
Querceta, -	563	717
Vallechia, -	1182	1335
La Capella, -	901	1031
Total	8227	9752

Increase in six years, 1525 inhabitants.

I could have wished to have given a greater extent to these tables; above all, to have annexed to them comparative statements of the mortality of the different epochs we have been considering; but being averse to availing myself of any other numbers than those which have been furnished by authentic documents, I have been obliged to confine myself to such as could be extracted from the public archives. This was the more to be desired, as we have no other similar event upon record, which has exercised such a remarkable influence upon the state of a country. Consequently, after the facts which we have collected, not the smallest doubt can exist regarding the cause of the rapid, I will say nearly marvellous, increase of population which immediately followed the construction of dams;—an increase which will only stop at the moment when, like the rest of the states of Lucca the population of which is stationary or at least very slowly progressive, an equilibrium shall be established between the number of the inhabitants and the subsistence which they are enabled to draw from their fertile soil.

Seeing, then, that the fact of the atmosphere being rendered salubrious by the exclusion of sea-waters from the marshes of Massaciuccoli, Motrone and Cinquale is well established, there arises a series of questions, upon the solution of which the explanation of the change must depend:

1*st*, Is it from a simple mixture of fresh and salt waters, that the pestilential miasmata which infect the air of these countries develope themselves; or do these principles rather result from the destruction and corruption of certain vegetable and animal tribes which being unable to exist in sea-water, are destroyed by the introduction of this fluid into fresh-water?

2dly, In either case, what are the chemical changes induced by these mixtures; the nature of the deleterious emanations; the degree of heat necessary for their production, the influence of the soil, and of the mud of the morass, &c.?

3dly, What is their action upon life? To what distance can it extend? And, in general, by what circumstances can it be modified, &c.?

It is only by new experiments, undertaken with all the resources of science, that these questions can be answered. Artificial and varied mixtures should be resorted to. We should study in succession the simple mixture of the two waters, their mixture in conjunction with the mud extracted from the bottom of the morass; the mixture of these waters, and of animal and vegetable substances in putrefaction; the chemical changes which are slowly developed in these mixtures from different degrees of temperature; the nature of the products, and, above all, of the gases and substances held in solution by these vapours; the manner in which the life of animals is affected either from mixtures,

or vapours extracted from these mixtures, and collected by artificial means, or from air impregnated with these vapours; the comparison of these artificial products with those of the country where the mixture is naturally made.

Here is a vast field open for difficult, delicate, yet expensive researches, but from which there may unquestionably be gathered a large store of results, new to science and useful to humanity.

For our own part, while desiring that circumstances may, at a future time, permit us to attempt some discoveries, we acknowledge, that more extended and more varied observations are necessary to success; and, therefore, with the greatest earnestness, we invite the attention of philosophers to a subject so interesting.

ART. III.—*Case of Acute Bronchitis, Pneumonia, and Pericarditis, investigated by the Stethoscope and Percussion.* By THOMAS JOWETT, Esq. Resident Surgeon to St Mary's Hospital and Dispensary, Nottingham.

BRYAN FLINN, aged 35 years, was admitted a patient of St Mary's Hospital, Nottingham, about the middle of October 1825, at which time he laboured under very severe and extensive acute *bronchitis*. The *auscultic* indications of this state, were, the *sonorous* and *sibilant rattles*, generally audible throughout the thorax, and in some places verging to the *mucous* kind. The *respiration* was of a *prolonged* and *blowing* character, which I believe to be peculiar to bronchial inflammations: and it was at times *inaudible*, in spaces of various extent, but generally reappeared after a fit of coughing. The sound elicited by *percussion* of the thorax was *good*. He expectorated about a pint of clear viscid mucus, rather frothy on the surface, in the course of a day. There was considerable edematous swelling of the legs and feet. The reduced state of the patient at the date of his admission, precluded all idea of his bearing general sanguineous evacuations. Blisters were applied to the sternum, and the tartarized antimony in doses of one-fourth of a grain every four hours was prescribed.

Under this treatment, conjoined with spare diet and rest, the bronchial inflammation abated, the œdema of the lower extremities subsided, and he continued improving in all respects until the 16th of November; on which day he was seized with obscure pain in the lower and back part of the left side of the chest, and other symptoms indicating the supervention of *pneumonia*. The legs again became œdematous. He was bled,

leeched, and blistered, with advantage. On the 22d he was quite free from the pain. His position was constantly sitting up in bed, nor could he lie down, on account of the increased difficulty it occasioned in his breathing, and the aggravation of his cough. The sputa were become more opaque and gelatinous, and the froth floating on the surface was very thick, and in large quantity. *Percussion* elicited a good sound in the right back, and a *dead* one in the *left*. By the *Stethoscope* there was *no respiration* audible at the bottom of the left side of the chest posteriorly, but only a little, weak, rattle when he inspired forcibly. There was more or less *bronchial respiration* between the left scapula and the spinal column, around and over the inferior half of the scapula, and from that bone along the course of the fifth rib towards the sternum. Along with this bronchial respiration there was *resonance of the voice* (bronchophony), more or less perfectly resembling egophony. The respiration was *vesicular*, but feeble at the summit of the lung posteriorly, and down as low as the third rib anteriorly; below the latter point it was altogether inaudible. He was directed to continue the use of the tartarized antimony.

The pulmonary affection was relieved, the œdema of the legs again subsided,—he could lie with his head lower down in bed, —and he again appeared to be improving, until 26th November, on which day he did not seem so well, owing to what he termed "*a weighty pain, like squeezing his heart together*;" and which, he said, "*seemed to bind his heart up, and prevented it beating and playing as it used to do.*" When desired to point out the exact seat of this pain, he accurately traced, with his finger, a large precordial space. Examined with the cylinder:—The *heart's action* was natural as to rhythme, but appeared to be *at a distance* from the side. He was obliged to keep constantly in the sitting posture, as the attempt to lie down considerably aggravated his sufferings. Leeches and a blister were applied to the præcordial region.

On the 28th November he felt better. On the 29th he could lie lower down in bed, but said he was no better. He complained of his heart feeling oppressed and squeezed, and that changing the posture brought on the pain. The pulse was small and weak, and rather irregular as to frequency and strength. By the stethoscope, the heart's action was heard indistinctly, and as if it were *at a distance from the side*, on listening attentively to it. Mr Curshan and myself distinctly heard a *bubbling noise*, like air-bubbles agitated with water. This noise was audible for a few seconds together, and then ceased, recurning, and again ceasing at short intervals. As far as could be ascertained, it seemed to accompany, and to be caused by the motions of the heart. In the course of the same

night it became much more distinct, and so loud as to be heard with the naked ear by a patient lying in the next bed. It had disappeared the following morning.

From this time he remained free from pain for several days. On the 3d December he again complained of his heart, which felt, he said, "*like a great weight crushing it.*" The impulsion of the heart was felt in a confused manner in a considerable præcordial space, when examined with the cylinder. The pulmonary indications continued nearly the same.

About the 10th of December œdema reappeared in the lower extremities for the third time, and it continued to advance upwards towards the body until his death, which took place on the 20th December.

Autopsy made 28 hours after death, in the presence of Dr Marshall Hall, Dr Godfrey Howitt of Leicester, Mr Oldknow, and Mr Cursham, surgeons; to whom I read the following remarks, which I had previously written in my note-book:

"21*st December*.—On looking over my notes of Flinn's case, for the purpose of forming an opinion of the morbid appearances, before examining the body, it appears, that the *inferior lobe of the left lung* is generally in a state of *hepatization* (probably of the grey kind): Whether there be (any) *pleuritic effusion*, and to what extent, I cannot say; I think it cannot be abundant. Although not quite certain, yet in this case I do expect to find *pericarditis*, of course accompanied with *effusion into the pericardium*."

Thorax.—Before the chest was laid open, it was observed, that the sound on percussion was dead in the precordial space, and as high up anteriorly as the second rib on the left side. On removing the sternum and cartilages of the ribs, the *pericardium* was seen to be of very large size; it extended *superiorly* as high as the second left rib, *laterally* beyond the sternal extremities of some of the left ribs, and much more than usual to the right side. It contained a large quantity of *fluid*, and a small portion of *air*; the fluid amounting in quantity to two pints and a half, was rather thin, uniformly opake, pale, greenish yellow pus, mixed with many loose flakes of coagulable lymph. The internal surface of the pericardium, and external surface of the heart were coated with a thick layer of recent coagulable lymph, and many loose pedicles of lymph projected from them. The heart itself was pushed backwards and upwards, and was attached to the pericardium posteriorly, by means of firmish lymph. It was of moderate size; and, when cut into, its parietes appeared thinner, paler coloured, and more flabby than natural. Its cavities contained a good deal of blood.

The *lungs* were almost universally adherent to the thoracic parietes, by means of firm old adhesions, so that it was found necessary to bring away with them a good deal of the costal pleura and diaphragm, in order to remove them from the body. The adhesions were, for the most part, infiltrated with transparent, serous, indeed almost gelatinous, fluid. There was no pleuritic effusion. The *left lung* was crepitous throughout its *superior lobe*, but less so than natural; and when incised, much serous fluid, mixed with minute air-bubbles, oozed out. The *inferior lobe* was not at all crepitous, but dense, fleshy, and of tender consistence; it appeared in a state intermediate between the red and grey hepatization, but more approaching the latter than the former. The *right lung* was crepitous throughout, but less so than natural: a good deal of serum, mixed with air-bubbles, flowed from incisions made into it.

The lower part of the *trachea*, and the *bronchial tubes*, contained much thick, frothy, tenacious mucus. The *mucous membrane* was deeply reddened throughout the whole of the ramifications of both lungs, but more especially in those of the inferior lobe of the left one.

Abdomen.—There were some old *adhesions* between the omentum and peritoneal lining of the abdominal muscles, and between the liver and the diaphragm. A little serous *effusion* into the *abdominal* cavity. The *liver* was larger than natural, and gorged with blood and the *spleen* was also enlarged.

Head; not examined.

Observations.—I shall confine the few remarks I have to offer upon this case, principally to the pathology and diagnostic indications afforded by auscultation and percussion.

1. With regard to the *bronchial inflammation*, I have stated that the *respiration* was of "a prolonged, blowing kind, peculiar to bronchitis." Extensive experience in the use of the stethoscope enables me to speak of this sign with a good deal of confidence, *as characteristic of tumefaction of the bronchial mucous membrane.* This kind of respiration appears to be more *forcible*, of *longer duration*, and more *noisy* than natural. It bears considerable resemblance, and nearly approaches, to the *puerile* character; but a practised ear readily distinguishes it, especially by its *prolonged* and *peculiar blowing* nature. I think it depends upon the caliber of the bronchial tubes being diminished by the swelling of the inflamed internal membrane, whereby the respiration is rendered *louder*, from the respired air having to pass through smaller tubes, whilst the duration of the act is *prolonged*, in consequence of the greater length of time it requires to inflate and empty the air-cells, with bronchia whose calibers are less than natural.

2. Although the *respiration* was at times *inaudible* in some parts of the chest, the fact of its *reappearance* and restoration by the act of coughing, and the *good sound* elicited by percussion, proved the disease to be seated in the *bronchia*, and not in the parenchymatous structure of the lung. I may here remark the great utility of percussion, as a means of distinguishing inflammation of the bronchia, from that of the pulmonary structure. Where the sound continues good, we may be certain that the bronchia alone are affected. I have frequently noticed, and I believe it will generally be found to hold good, that the thorax is even *more sonorous* in bronchitis, than it is in the natural state; a circumstance that, I imagine, may be satisfactorily explained, by supposing that the act of expiration empties the air-cells less perfectly than in the healthy condition, in consequence of the swollen state of the bronchial mucous membrane, and the mucus contained in the tubes impeding the free and complete expulsion of the respired air; so that the lungs really containing a greater quantity of air, the thorax becomes more sonorous.

3. The utility of auscultation and percussion in the diagnosis of diseases of the lungs, is strongly illustrated by this case. In the first instance, their conjoint use afforded decisive evidence that, notwithstanding the severity of the disease, the bronchia alone were the seat of the inflammation. No sooner, however, did pneumonia supervene, than they afforded equally certain indications as to its *seat*, *extent*, and *degree*.

4. To enter fully in this place upon the subject of *bronchial respiration* and *resonance of the voice* (bronchophony), as signs of the *hepatized* state of the lungs, would require details of a too extensive nature. I shall content myself with stating, that many examples have occurred to me in the course of my investigations, and that there is no fact in stethoscopy of which I am more certain, than that *an indurated state of the pulmonary structure*, occasioned either by hepatization or crude tubercles, does communicate the respiration and resonance of voice, from the bronchial tubes situated in the diseased part. My experience on this point almost exactly coincides with that of M. Andral, to whose work (Clinique Medicale, tome ii. p. 334.), or the analysis of it, given in the Medico-Chirurgical Journal for October 1825, p. 514, I refer the reader for further information. It may be useful to add, that I have known *bronchophony*, in one case of hepatization of the superior lobe of the lung, perfectly resemble *pectoriloquism*. In many cases it is scarcely to be distinguished from *ægophony*.

5. With respect to the inflammation of the pericardium, I think all the evidence of its existence, with the exception of the

pain, may be referred to the distension of the bag by the effusion; the oppression and obstruction complained of seem very characteristic of such a state. The *distance from the side* at which the heart appeared to act, is a sign which I have also observed in another case of copious effusion into the pericardium from inflammation; and I am inclined to think, it will be found an useful indication, where the effusion is in large quantity.

6. The *bubbling noise* heard by Mr Cursham and myself, in the precordial region, is an interesting confirmation of Laennec's observation, respecting the coexistence of aerial and liquid effusions in the pericardium: "J'ai entendu d'une maniere très-distincte *un bruit de fluctuation* déterminé par les battemens du cœur, et par les inspirations fortes chez un sujet qui succombait à une peripneumonie avec hypertrophie du cœur, et à l'ouverture duquel je trouvai dans le péricarde *une bulle d'air*, du volume d'un œuf, et environ une livre de sérosité limpide et incoloré *." Although the nature of the phenomenon left no doubt on my mind of the coexistence of air and fluid in the pericardium at the time I heard it, I did not insert it in the diagnostic remarks I read at the dissection, because I had not observed it for some time previous to the death, and I considered it possible that the air might have been reabsorbed.

Nottingham,
February 8. 1826.

Art. IV.—*Eneuresis accompanied by a Diseased State of the Abdominal Viscera.* By C. J. Roberts, M. D. Member of the Royal College of Physicians, London, and of the Medico-Chirurgical Society; Physician to the Seamen's Hospital, and to the South London Dispensary.

D. D., æt. 52, about six years since, was attacked with inflammation of the respiratory organs, from which he recovered; but was shortly after affected with pain in the occipital region, which continued to annoy him for some time. He made repeated requests to the medical attendants to bleed him, but they were not complied with; and it was not until after a great deal of importunity he was permitted to be cupped, which afforded considerable relief to the headach. Partial or imperfect paraplegia gradually supervened, and continued until death. The circumstance which most annoyed him, was incapability of re-

* De l'Ausc. t. ij. p. 396. sect. 878.

taining his urine, which constantly dribbled from him. The the first time I saw him, was about four months before his decease, and his complaints then were those of gastric derangement; and to the relief of which I principally turned my attention, as I was well convinced, from the length of time which he had been suffering, there was no very great prospect of success in curing his other maladies. His principal symptoms were, short tickling cough without expectoration, loss of appetite, gastrodynia; but the eneuresis was the most annoying.

On the 20th December 1825, I was requested to call and see him; I found him confined to his bed, and suffering severely from pain in his legs and thighs, very much resembling rheumatism, and which, at intervals, attacked different parts of his body. I ordered him some mistura guaiaci of the London Pharmacopœia, to which I added some laudanum and the vinum colchici, and his bowels were endeavoured to be kept open; but this was only partially accomplished, and it was with very great difficulty they were compelled to act. The mixture relieved him greatly, and he had some sleep; but, at my next visit, the pains were returning; his pulse was 120, and full; he was bled to ℥ viij, when syncope was threatened. The coagulum was cupped and buffed. The next day he was much improved, and made no complaints but of hoarseness, which he attributed to cold caught whilst sitting up in bed to be bled.

On the following day he was rapidly sinking; his pulse was hurried, and feeble; the tongue was coated with thick brown fur; his speech was husky. I now ordered him four grains of sulphate of quinine in a mixture, of which he was to take one-fourth part every six hours. This had the effect of cleansing the tongue in as rapid a manner as it had been before coated, and the sordes peeled off, leaving the tongue covered by a thin glaze, and very red. He now made no complaint, except of a return of cough and a continuance of the hoarseness. The expectoration was copious, of a dark colour, but not fetid.

On Christmas morning I visited him about 11 o'clock A. M.; his pulse was about 110, moderately full, not by any means denoting the approach of death. The expectoration had become more pale, and was voided in larger quantity. He expired, however, at 4 o'clock A. M. of that day. During the whole of the attack, I had the greatest difficulty in getting the bowels to unload themselves, both by the use of purgatives and enemata.

After some importunity, I was permitted to examine the body. On cutting open the abdomen, there remained but a very small portion of the omentum. The general appearance of the intestines was healthy; but on tracing them, from the stomach, I discovered a fold of the ilium, which had fallen down

into the pelvis, and was pressed against the upper part of the sacrum by the thickened and very much distended bladder. This portion of the gut was very black. On continuing the examination, the viscera were found to be healthy, except the descending branch of the colon, which was tied down very firmly to the side of the spine, close over the kidney and psoas muscle of that side. It had lost all the distinguishing form of that viscus, the longitudinal bands having disappeared. Its caliber was also diminished, as the canal would with difficulty admit the little finger;—the coats were much thickened. The kidney of the left side was quite healthy. That of the right was nearly three times the natural size, and full of pus. The ureter was greatly enlarged; and about an inch from where it makes its exit from the pelvis of the kidney, it doubled back upon itself. The bladder was considerably inflamed, and its coats were very much thickened, bearing evident proof of its not having been able, at least for some considerable time past, to contract to its proper size. The lungs were filled with vomicæ, and tubercles beginning to suppurate. There were many old adhesions, which were so firm, and of so long standing, as not to allow the hand to be passed between the pleura pulmonalis and costalis, which on being attempted, stripped the latter from the intercostals. The heart was found lying directly under the sternum. There was some water in the pericardium.

I was not permitted to examine the cerebrum.

Costiveness, and slow action in the bowels, were the only symptoms in any way significant of visceral disease.

ART. * IV.—*Observations on the Causes of the Prevalence of Smallpox, and on the means of preventing the Dissemination of that Disease.* By ALEXANDER MONRO, M. D. F. R. S. E. Professor of Anatomy and Surgery in the University of Edinburgh, President of the Royal College of Physicians, &c.

THERE can be no doubt entertained as to the comparative safety of smallpox and cowpox, the former, when caught by contagion, or even when received by inoculation, being frequently, even under the best management, a malignant and fatal disorder; whereas the latter is much more mild, seldom or never fatal, and is not a cause, like the smallpox, of any immediate or consequent disease, or even of blemish.

In these circumstances, it is matter of regret that prejudice or inattention should render any parent so blind to the welfare

of his child, as to lead him to substitute the smallpox inoculation for that of the cowpox. Considering the unfavourable bias which public opinion has received against the cowpox as a preventive of smallpox, it seems necessary to inquire into the origin and validity of such prejudices, and to examine into all their bearings, in order to determine whether they be well or ill founded.

On a former occasion *, I endeavoured to prove the beneficial effects of vaccination, and I again advocate the same cause, from the deepest conviction of the great and general interest of the subject,—from a desire to oppose, by fair and candid inferences, the distrust which some entertain as to the security afforded by cowpox against smallpox,—and also from a persuasion, that vaccination is one of the greatest blessings that has been conferred on mankind, but that, like many very powerful and valuable remedies, when unskilfully administered, and to one whose constitution is under the influence of some other disease, it will fail in producing the desired effect.

For some years after Dr Jenner had brought the cowpox into general notice, in consequence of the concurring testimonies of the Royal Colleges of Physicians and Surgeons in London, Edinburgh, and Dublin, the vaccination flourished, and was much in vogue, and almost universally held in the highest estimation. It was peculiarly unfortunate that public expectation, as to its effects preventive of smallpox, had been raised to too high a pitch : it had been represented as a never-failing preventive of smallpox. This was found to be an error, an overstatement as to its powers ; for these have their limits, there being persons of such constitution as are not to be protected by previous vaccination. Such a peculiarity of constitution is, however, comparatively rare, and even though universal, there is not any well grounded reason for rejecting vaccination, as the smallpox, consequent to cowpox, is a modified and mitigated form of that disease, which has very seldom proved fatal.

Other misconceptions and unfounded objections to cowpox, not altogether unconnected with malice and envy, have been proposed and circulated with great industry, tending to mislead the ignorant, and those who do not take the trouble of weighing the force either of argument or of evidence. It is impossible to employ language too strong in contrasting the virulence of smallpox, whether casual or inoculated, with the greater safety and greater mildness of vaccination. That the cowpox matter has lost its original virtues, is an assumption not consonant with fact.

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* Treatise on the different kinds of Smallpox. Edinburgh, 1818.

The testimonies of Dr Barron and of Dr De Carro, and of many others, are in the face of such an assertion. The former gentleman has for many years been resident in Gloucestershire, and has ascertained that the preventive virtue of cowpox *has not been* impaired by time; for during sixty years the cowpox has been found to be a safeguard against smallpox with the greater number of individuals, and Dr De Carro's letter, which is subjoined, is equally conclusive in favour of the duration of the virtues of cowpox. To what, then, is the greater prevalence and mortality of smallpox within these few years to be imputed? I apprehend it is chiefly owing to the vaccination having been improperly performed. Children, therefore, who have been supposed by their parents to have been sheltered from smallpox by the protecting influence of cowpox, have caught the smallpox after having breathed an atmosphere highly charged with the contagion of that disease.

This great evil might be averted by due attention to vaccination, and by adopting means to prevent the propagation of the contagion of smallpox.

Whilst in other parts of the world the full benefit of vaccination is reaped, by the employment of rigorous and judicious regulations, the subjects of the British empire, where the discovery originated, enjoy it only partially; and many, through the neglect of similar regulations, annually fall victims to smallpox.

Such being the case, it seems necessary to adopt a plan calculated to arrest the progress of smallpox, such as the following.

The inoculation of the smallpox is undoubtedly a means by which the disease is rendered much safer to the individual, but not so to the community at large. Thus the contagion is propagated. In proof of which, in those countries in which inoculation has been practised to the greatest extent, as in the Russian empire, the smallpox has been found to be most prevalent and fatal.

The inoculation of the smallpox should therefore be given up, and vaccination, the most powerful weapon for preventing the dissemination of the smallpox, substituted, and cherished with the same fostering care as in other parts of Europe, so that the full benefit of it might be reaped. There is on record a striking example in proof of the benefit to be derived from preventing the inoculation of the smallpox,—I mean that of a neighbouring kingdom, viz. France, in which the smallpox became epidemic in the year 1763. This created very great alarm. The parliament investigated the cause of the unusual mortality, and was persuaded it was owing to the inoculation: accordingly, a decree was issued, *prohibiting inoculation in Paris.*

Mr S. Bourne most justly observed, in the House of Commons, that "the Legislature would be as much justified in taking measures to prevent inoculating out-patients in the Smallpox Hospital in London by restraint, as a man would be in snatching a firebrand out of the hands of a maniac, just as he was going to set fire to a city."

Those labouring under smallpox, should be most strictly confined to their own houses, or within an hospital appropriated to the purpose, until all the crusts have fallen off, and as long as it is thought they may communicate the infection to others. Their clothes should be well washed and fumigated, before they mix again in society.

If such laws were passed, and rigidly enforced, the smallpox, for want of victims, would necessarily decline, and in a short time become extinct.

Similar regulations are also necessary in the case of smallpox after cowpox, for smallpox of a virulent kind may take its rise from such a source.

The bed-linen of the patient should, as soon as it is taken off, be put into cold water for some time, and afterwards well washed, and also the chamber and the furniture.

At our sea-ports still more vigilance is requisite, in order to guard against the importation of the contagion of smallpox; and, besides adopting those measures which are best calculated for destroying the contagion, it might be well to hold out a suitable reward to those who discover the source of the contagion, and are most active in restraining or destroying it.

It may be stated against the first of the proposed regulations, that, in a country with a government like ours, where the inhabitants are accustomed to liberty in every thing, it could not be enforced. But if quarantine laws are daily enforced with rigour, why should not similar enactments be provided against the propagation of smallpox, which has proved, and continues to *prove, much more fatal than the plague itself?* When the plague broke forth in Britain, it appeared only in London and some of the larger cities; whereas no city, no village, or even hamlet, is exempted from the smallpox; and a much greater number have died from the former than the latter.

It were much to be wished, that those salutary measures which have been proposed, and in one case only enforced, against a woman, convicted of carrying her child, covered with the eruption of smallpox, abroad, should be universally extended, and firmly executed, as general means of public preservation. In the case alluded to, eleven persons were infected with smallpox, eight of whom died, and one became blind. The court declared, in the above case, that the exposure of a person labouring under a contagious disease, which endangers the lives

of others, is a criminal act punishable by law. At the present time, such a measure is imperiously called for, considering the greater prevalence of the smallpox.

The above remarks may probably gain weight, by a perusal of the subjoined letter of Dr De Carro of Vienna. It is, in my mind, an important document, as explaining some curious points in the history of vaccination,—also the means by which it is propagated, and likewise the great effect which a general vaccination, and judicious regulations strictly enforced, have had in arresting the progress of smallpox.

"My Dear Professor, *Vienna, July* 13. 1825.

"You mention smallpox cases after vaccination as a very common occurrence, but mitigated in their symptoms. The more I read and hear about the frequency of your consecutive smallpox after vaccination, the less I understand how such cases are so infinitely rare among us. Exact registers are kept, where every individual seized with the smallpox is announced to the public, where a regular list is every year carried from one house to the other, to inquire and mark down every person who has not yet been vaccinated; where, in every case of smallpox, a board, upon which is written *Here is smallpox*, is hung before the door, to warn the neighbours; where no child is admitted to any school whatever, without a certificate of vaccination; where the names of children dying from the smallpox, are put in the *Vienna Gazette*, as victims of the carelessness of their parents; in short, where the civil and medical authorities act conjointly to superintend carefully the general measure of vaccination. Since the year 1799, *our vaccine keeps perfectly true and genuine*, and I do not see the least difference in its present and primitive nature. I doubt very much, if, in the course of these 26 years, 10 cases of smallpox after cowpox, would be ascertained as such; and as to me personally, *I never saw one in my own practice*, and the only case of it I ever witnessed, where vaccination had been perfectly regular, was very severe, and not in the least mitigated smallpox.

"The source of our cowpox is partly British, and partly originating from the *grease* of a horse at Milan, without any intervention of a cow. The effect was so similar in every respect, that they were soon mixed, that is to say, that it was impossible to say, after several generations, and in the hands of innumerable practitioners, what was equine, and what was vaccine. The whole British settlements in India have been *equinated;* for the first liquid drop which I sent 25 years ago to India, was the second generation of Milanese equine or greasy matter, transplant-

ed at Vienna. You know by frequent reports from the East, that the practice is upon the best footing.

"The impossibility of a variolous epidemic with us, where vaccination, and never inoculation, is so universally practised, accounts probably for the rareness of consecutive smallpox. I know very well, that measures like those adopted in Austria, and almost in every other state of Germany, are of more difficult execution in Great Britain, where every individual thinks himself free to do what he pleases, and not what he is commanded to do; but I particularly admire an absolute form of government, where it is applied to such salutary measures. Believe me, my Dear Professor, to be,

"Most truly yours,

"To Dr A. Monro, "J. De Carro, M. D."
Professor of Anatomy, Edinburyh."

I shall conclude, by a brief enumeration of the principal causes of imperfect vaccination, which has had a most pernicious influence in favouring the propagation of the contagion of smallpox.

1*st*, The smallpox is propagated by inoculation for cowpox being performed in an imperfect manner. The seeming simplicity by which the inoculation of cowpox is performed, together with the mildness of the disease, has led midwives, nurses, gardeners, and many others, not at all conversant with the appearances or progress of the genuine cowpox, to practise vaccination; and the same description of people, having gained confidence by their experience, still continue to inoculate a much greater number of the poor than medical practitioners. Besides, such inoculators do not take the trouble of visiting their patients during the progress of the disorder, or the parents neglect to bring back their children for the inspection of the inoculator.

2*d*, Another cause of imperfect vaccination is, that the inoculation for cowpox is practised when the patient labours under some cutaneous disorder, as measles, scarlet fever, itch, herpes, tinea capitis, or crusta lactea, all of which disorders render the cowpox inoculation abortive.

3*d*, It is extremely difficult to determine by the eye, whether perfect vaccination has taken place or not, of which the reader cannot fail to be fully convinced, upon perusing Dr Willan's observations on the various forms and appearances of the spurious, as well as of the genuine cowpox vesicle; and, besides, the local may be mistaken for the constitutional affection; hence the great value of Mr Bryce's test, which affords a *certain criterion* for distinguishing whether the constitution has been under the full influence of cowpox or not. Vaccination does

not succeed, if the lancet on which the matter of the cowpox is preserved becomes rusty, for the rust of the steel decomposes the poison.

4th, The matter taken from the genuine cowpox vesicle may be injured by heat, exposure to the air, or moisture, and even the crusts employed for cowpox inoculation, when kept in a high temperature, soon acquire a particular smell, which Mr Bryce has observed, marks their loss of power to reproduce the cowpox.

5th, If the vaccine vesicle has been repeatedly punctured or drained for two or three successive days, the inoculation generally fails; for the poison which, in the progress of the disease, is deposited into the cells of the vesicle, is thus exhausted, or may be so much diluted as to be incapable of producing the disease by inoculation.

6th, If the matter be taken after the 13th day from the cowpox vesicle, it does not, according to Willan, produce the genuine cellular vesicle, but is, in some cases, wholly inefficient; while in others, it suddenly excites a pustule or ulceration; in others, an irregular vesicle; and in others erysipelas, all equally ineffectual in giving the desired protection against smallpox.

Such are some of the more frequent causes which occasion imperfect vaccination.

From what has been above stated, the following inferences may be drawn.

1st, That the cowpox still merits the confidence of the public, as a preventive of smallpox.

2d, That smallpox rarely succeeds cowpox, when the inoculation has been practised by a skilful person, and when the patient does not labour under some other cutaneous disorder.

3d, That the smallpox, consequent to cowpox, is a modified and mitigated form of that disease, which seldom or never has proved fatal.

4th, That cowpox is one of the principal means by which the dissemination of the contagion of smallpox might be arrested.

5th, That the smallpox might be rendered extinct, or extremely rare, by the employment of the cowpox, and of rigorous regulations, to prevent its propagation.

Since the preceding observations were put to press, I have had an opportunity of reading a valuable paper on smallpox by my friend and late pupil Dr George Gregory, physician to the Smallpox Hospital in London, and whose authority on such subjects must carry great weight with it. I have had the gratification to find that Dr Gregory confirms many of the state-

ments in the preceding paper, 1*st*, As to the frequency of smallpox during the last year; 2*dly*, As to vaccination having occasionally failed to give security against smallpox, and also as to the severity of smallpox on those who were unprotected by vaccination; 3*dly*, As to the difficulty of ascertaining exactly whether vaccination had been perfect or imperfect; and, *lastly*, As to the great benefit to be derived from vaccination. His words upon this last and most interesting branch of the subject are too important to be omitted:—"*That vaccination has the strongest claims upon the confidence of medical men, and on national support; and that nothing further is to be desired in the way of protection against smallpox, than a stricter attention, on the part of practitioners in the country, to the diffusion of good and genuine vaccine lymph, and perhaps some increased facilities, on the part of government, to the procuring lymph from large towns, where alone it can be obtained in that state of purity and perfection which is essential to the safety of the individual in after life.*"

ART. V.—*Historical Remarks on Yaws and Sibbens, considered as identical affections.* By SAMUEL HIBBERT, M. D. F. R. S. E. &c. &c.

I SHOULD feel the greatest diffidence in advocating the identity of the two diseases, the Yaws and the Sibbens, if it were not for the excellent Essay of Dr James Thomson of Jamaica on the latter affection, which was published six years ago in the Edinburgh Medical and Surgical Journal. He has corrected many of the erroneous accounts which had before been published of it, and has given us sufficient data, by which we are enabled to compare it with the sibbens of the British Islands. But before proceeding farther, it would be proper, for the sake of convenience, to fix upon some common name to attach to this disease, whether it exists in the West Indies or in any other country. I shall therefore resort for such a term to our common nosological works, where the yaws have long been designated by the appellation of Framboesia.

According to Dr James Thomson, the West India disease named the yaws, is the most severe in children. It is often ushered in by feverish symptoms. The whole skin appears as if covered with a white scurf, or as if it were dusted with flour. After the lapse of a few days, small papulæ appear on the forehead, and other parts of the body, continuing to increase until they get a crust at the top, under which ill-formed pus is concealed. Thus does the eruption from being papular acquire a pustular character.

A pustule thus covered with a scale, will often increase to the size of a shilling, concealing beneath it a foul sloughy ulcer. This ulcer sometimes heals, but often a fungus springs up, which is red like a piece of flesh; though in patients remarkably debilitated, it is white like a piece of cauliflower, is less elevated, and bleeds on the slightest touch. These sores are spread over the whole body.

When the healing process takes place, the fungus contracts, is gradually diminished in height, and is finally covered over with skin. Pustules attack the throat, though in this part they have no fungus; they often deprive the patient of the greater part of the palate. The duration of the disease is stated from six to twelve months, or, on an average, it may be said to run its course in eight months. The sequel of the affection is often very distressing. As soon as the eruption has ceased, if there exist an hereditary tendency in the constitution to any particular disease, it is brought out. Pain and stiffness are felt in all the joints; the patient loses flesh, the bones swell, the voice becomes guttural; there are patches over the skin, and the feet swell. Nor do these symptoms always cease; a confirmed cachectic habit too often remains for life.

Frambœsia has been considered by all writers as most highly contagious.

This disease is susceptible of different states of virulence, which have been uniformly influenced by the greater or less abundance of nourishment used by the people among whom the infection has subsisted. But it will be very instructive to shew, by a few examples, the powerful influence which this predisposing cause exerts in modifying the symptoms of frambœsia, and, at the same time, to take a slight historical sketch of certain aggravated or mitigated forms of which the affection is susceptible.

There can be no question but that in the countries where slavery prevails, as in the West Indies and the continent of America, a greater predisposition exists to be affected with this disease than among any other people on the face of the globe. "Immediately on our coming to anchor in Carlisle Bay," says Dr Pinckard, in his Notes on the West Indies, "a woman appeared alongside the ship in a small boat with some articles of traffic. She was rowed by two negroes, who we learned were her slaves. Two such objects of human form and human misery had never before met our eyes. They were feeble, meagre, and dejected; half starved, and half naked; and, in figure, too accurately resembling hungry and distempered greyhounds. They crouched upon their heels and haunches in the boat,—their naked bones almost pierced their filthy and eruptive skins,—their wasted frames trembled with debility,—and while their hollow eyes and famished countenances rendered them ghastly

images of horror, their whole appearance shocked humanity and appalled the sight." This is a most revolting description, and it is easy to draw from it the melancholy inference, that, among a half-fed and emaciated people like this, the yaws must exist in their very worst form. But it is proper to add, that slaves in this reduced state are not to be found universally throughout the West Indian Islands. With many masters they are better fed. In America, however, too many of this description drag on a miserable existence; consequently it is here that we must look for the yaws in their greatest state of aggravation. That particular variety named *Pian* or *Epian* is produced among slaves who are in the extreme of wretchedness. Carbuncles or fungous berries appear, which resemble the figure and blackish-green colour of the fruit or berry of the pine-nut. Their corrosive secretion is said to destroy progressively both muscles and bones.

The second variety of this disease occurs in rather a less exasperated form. This is the common yaws of most authors, as it usually appears among the slaves of the West Indies. The fungus which marks this state of the affection, exhibits far less of the carbuncular character, and the gangrenous disposition, by which the pian of America is distinguished. Dr Thomson conceives, that, if very aggravated symptoms form the sequel of the affection, it is from some pre-existing tendency in the constitution to an hereditary disease, which is then, as he adds, universally called into action. Upon the cessation of the eruption, pain and stiffness of the joints, along with swelling and deformity of the limbs, general emaciation, and patches over the whole skin, too often supervene; and not unfrequently some ulcer breaks out, by which the patient is rendered a cripple for life. This writer has omitted, however, to notice one other cause, that must certainly have its share of effect in promoting the permanent cachectic state. I allude to the neglect and ill treatment which the slaves receive in the yaw-house, or hospital intended for their reception, while labouring under this disease. "Some of these diseased and truly pitiable objects," says Dr Pinckard, in describing this scene of human misery, "were crouching upon their haunches round a smoky fire; some stood trembling on their ulcerated limbs; others supporting themselves by a large stick, and even dragging their wretched bodies from place to place; while many, too feeble to rise, lay shivering with pain and torture upon the bare boards of a wooden platform."

But it is likewise imagined that the virulence of frambœsia keeps some pace with the degree of cleanliness which prevails among the people where the infection reigns. Are we then to suppose that the virus of the yaws is capable of undergoing, from a state of concentration, various degrees of dilution, and

that it actually does undergo this dilution whenever water is applied, after the usual detergent mode, to any portion of the surface of the body upon which its deleterious influence may have been exerted? But the effect of cleanliness in resisting the spread of the infection may admit of an explanation somewhat differing from this. It is allowed, that the action of the poison of frambœsia, after it has been applied to the surface of the body, is very slow, the latent period, or the interval in which no eruption appears after the poison has taken effect, being from seven to ten weeks. Accordingly, in the yaws, during the process of daily ablution, this action of the poison, much slower in its progress than that of syphilis or gonorrhœa, might not only be greatly reduced in virulence, but by still further dilution be rendered inert; if, indeed, it be not removed altogether from the surface of the body.

But the best proof of the effect of cleanliness and abundant nourishment in obviating the disease, is furnished by the circumstance, that frambœsia does not prevail among the white settlers in the West Indies.

Lastly, what are the circumstances to which the development of this poison has first owed its origin? These probably we shall never know; they partake of the mystery in which almost every other morbid poison of the human body is involved. Its chemical constituents and qualities are likewise no less unknown to us.

After these preliminary remarks on the general character of this affection, I proceed to the more immediate object of this paper, which is strictly historical. It is with the view of shewing,

First, That Frambœsia is, in all probability, a disease of the remotest antiquity;

Secondly, That the disease which originally bore the name of the *Morbus Gallicus*, was *not* Lues Venerea, as is generally supposed, but an affection in every respect corresponding to Frambœsia, or the Yaws of the West Indies;

Thirdly, That Lues did not begin to acquire the title of the Morbus Gallicus, until Frambœsia had almost disappeared in Europe; and,

Fourthly, That in the close of the 17th, and commencement of the 18th century, Frambœsia, under the name of *Sibbens*, reappeared in certain sequestered districts of the British Islands, and excited a terror, which afforded a correct epitome of the general panic which two centuries before had been universal thoughout Europe.

Section 1.—*The Probability that Frambœsia is a disease of the remotest Antiquity.*

Having given a short and general view of such circumstances in the history of the disease under consideration, as throw light upon its predisposing causes, it may be expected that I should say something of the period in which it has been supposed to have first made its appearance. Although such an inquiry has been often instituted, yet the result has been every thing but satisfactory. It may, indeed, be questioned if an investigation of this kind does not carry with it some degree of presumption; for it may be fairly asked, if there is any period of the world since disease and death came into it, in which frambœsia has not, in some quarter of the globe or other, afflicted humanity?

It is frequently supposed that the affection alluded to in the 13th chapter of Leviticus can be no other disease than frambœsia. The eruption is described as first appearing on the body like a rising in the skin and flesh, a scab or bright spot; in the second stage the plague is deeper than the skin and neighbouring flesh, and the hair in it is turned white. The individual, after exhibiting these symptoms, is pronounced by the priest unclean. In the third stage, when the leprosy is supposed complete, the rising is described as white in the skin; "it has turned the hair white, and there is quick raw-flesh in the rising." The priest, upon observing these signs, then proclaims the leper to be unclean and defiled, and sentences him to dwell alone without the camp. Now, it must be confessed that this description does not by any means disagree with the well-known character of frambœsia, though some exception may be taken to the hairs that grow out of the fungus turning white. An author, however, in the 6th volume of the Medical Essays, decidedly states that such is the case. His testimony is as follows: "The black hair that grows out of the parts now covered with the yaws, changes gradually white; I do not mean appears white by the ichor of the yaws upon it, but the substance of the hair itself is changed from black to a transparent white, like the white hairs of old men." But this assertion is denied by Dr Thomson, who maintains, that, in all cases where the hair appears white, it is from want of cleanliness; that when proper ablution is used, no such thing can be observed; and that, when the hair is destroyed, it seldom returns, and then it is of the natural colour. Dr Adams, again, conceives, that he can easily reconcile the Mosaic account of the disease with an appearance which fell under his own observation in a case that he judged to be the yaws. He states, that, when any hairs appeared in the neighbourhood of a pustule, they became white, from being encrusted with pus. But it must be confessed, that

these are rather conflicting statements, from which it is difficult to draw any very satisfactory conclusion. In the self-same predicament is the speculation that has for centuries more or less prevailed, that the disease with which Job laboured could be nothing but blenorrhœa, or, according to some medico-biblical theorists, syphilis. The latter notion has been the most prevalent, and hence the afflicted patriarch has been kalendared by the Romish Church as the patron of all such as are troubled with the French pox. Later authors, endowed with far more antiquarian modesty, have been content with tracing frambœsia to the African Negroes of the coast of Guinea. I would myself take a wider range, being of opinion that the disease has been hinted at (though it must be admitted very obscurely) by many authors, even of the earliest times, who have written on medical subjects. But before we can indulge in speculations of this kind, we must consider what circumstances connected with the production, or particular symptoms of the affection, would be likely to attract the greatest share of attention.

It has been observed, in the first place, that the seat of the eruptions commonly named the yaws, may be on the trunk and extremities of the body, as on the belly, breast, shoulders, arms, face, legs, feet, or on the scalp, and from this cause the infection is spread to others by actual contact, particularly by sleeping in the same bed. In the second place, the seat of the eruption may be in the throat and mouth, and thus it is communicable by using the same spoons, knives or towels which infected persons have applied to their mouth and lips, and by saluting or kissing; for against this latter mode of contagion we find, in the older medical authors, divers warnings, calculated to damp the ardour of tender lovers. In the third place, the genital organs are very common seats of the eruption; which last mentioned seat of infection accounts for the very ready communication of frambœsia during coition,—for the venereal character which has been assigned to it;—and, if this disease was really known to very ancient authors, for the prominence which appears to have been given by them to such symptoms as were observable in the region of the pudenda and anus.

But this view may be too speculative. Whether the "morbus quo turpes erant Cleopatræ asseclæ," or the "morbus campanus" of Horace, may be identified with frambœsia in its venereal character, I will not be bold enough to assert; nor will I, in imitation of some writers, be so rash as to lay undue stress upon symptoms assignable to impure coition, and assert that they unequivocally belong to the yaws of modern times. Of these may be cited the mariscæ tumidæ, the ficus, and the sordidi lichenes of Juvenal and Martial; the rhagades, the condylomata, the maligna ulcera vulvæ, and the tubercula genitalium of Dios-

corides; the ulcus sordidum et cancrum veretri of Scribonius Largus; the ficus in ano of Sextus Placitus;—and a crowd of similar symptoms which are to be found in the writings of Lucius Apuleius, Pliny, Galen, Oribasius, Marcellus Empiricus, Ætius, and Paulus Ægineta, the last of whom has particularly treated of ulcera pudendi et circa sedem. Now, although it is highly probable that, among the symptoms thus described, some may belong to frambœsia, yet it is no less probable that others may be referable to lues, gonorrhœa, or even to affections which are not strictly of a venereal character.

SECTION 2.—*Evidence that the disease which originally bore the name of* Morbus Gallicus, *was* not *Lues, as is generally supposed, but an affection in every respect corresponding to Frambœsia, or the Yaws of the West Indies.*

It was not before the close of the 15th century that the symptoms of frambœsia began to be most clearly described. Previously, therefore, to entering upon the medical annals of this period, we must go systematically to work, and endeavour to secure to ourselves some steady principle which may apply no less to the origin of other venereal affections, than to the yaws.

It has been explained, that frambœsia is susceptible of different states of virulence, depending upon the predisposing causes by which it is more or less excited. It is therefore not unreasonable to suppose that this affection may exist through a succession of generations in so mitigated a state, as to be productive of little inconvenience, and, as such, to attract little or no attention. On this principle, it may be easily explained why the disease, for a series of years, would meet with very slight notice in medical annals, or be even totally unrecorded; yet, when at length it had actually appeared in an aggravated form, so as to cause unprecedented distress, would stand a chance of being regarded even as a new disease.

In entering, then, upon this history, my object will be to shew, that much of the panic which was excited in the 15th century, owing to the prevalent notion that a new disease had, for the first time, been sent as a scourge upon the earth, had little to do with lues, but actually arose from the very contagious influence of an affection precisely the same as the yaws of the West Indies. In fact, this was the affection which at that time raged through a considerable portion of Europe, and which alone was considered as the *great gore* or *pox*. Although the contemporaneous disease of lues was included under this common name, very few were thus affected in proportion to the number of such as were visited with the more severe scourge of frambœsia. This curious fact I shall now attempt to prove.

The learned Swediaur has, I think, very satisfactorily established, that it was from the year 1483 to 1493 that the first alarm was excited, by the notion that a new contagious disease had appeared in Europe. This disease was extremely prevalent at Naples during the time that the French were in Italy, being named by them the *Naples disorder;* but the French carrying it with them on their return to their own country, it gradually spread through their means to the rest of Europe, and was then named *the French disease.* Now, the earliest character of this disease was the breaking out of the very same pustules and prominent excrescences which characterize the yaws of the West Indies; they are described as of the size of acorns, often changing into corroding ulcers, from which exuded ichor and fetid matter. Ulrich van Hutten, who wrote in 1519, thus describes this appearance: "Quippe tanta fuit, cum primum oriretur, fœditate, ut qui nunc grassatur vix illius generis esse putetur. Ulcera in querceæ glandis speciem et magnitudinem, aspera, exporrecta, spurcus ab his profluens humor." Fracastorius, in his poem of Syphilis, of the date of 1521, confirms this statement:

> "Protinus informes totum per corpus achores
> Rumpebant, faciemque horrendum et pectora fœdè
> Turpabant; species morbi nova: pustula summæ
> Glandis ad effigiem, et pituita marcida pinguis,
> Tempore quæ multo non post adaperta dehiscens,
> Mucosâ multum sanie taboque fluebat."

The testimony of Jean Lemaire, who wrote about the same period, is to a similar effect:

> "Mais en la fin, quand le venin fut meur,
> Il leur naissait de gros boutons sans fleur.
> Au front, au col, au menton et au nez
> Onc ne vit-on tant de gens bouttonnez."

In fact, the large pustules and excrescences which occurred on the surface of the body, suggested the name by which the disease was distinguished from the pustular eruption of variola; the former being named in contradistinction the *great gore* or *great pox*, while the other was the *small pox.*

Nor did the sequel of this disease differ from that of frambœsia in its virulent form. Fracastorius (in a passage which I do not transcribe on account of its great length) strikingly alludes to the deep corroding effects of the virus upon the cutaneous and muscular texture of the body, by which the bones were exposed, and foul indolent ulcers induced. The poison extended to the mouth, whereby the small bones were destroyed, and the means of sustenance affected. An ichor was likewise said to exude from this destruction of the solids, which concreted into a foul substance. Numerous other testimonies of the same kind might be brought forward from authors who described the *mor-*

bus gallicus when it first appeared, but with these I shall content myself.

Assuredly, then, such are not the well known symptoms under which lues is at present known to appear, or of which modern practitioners would suppose it to be susceptible. But every doubt on this subject cannot, I think, fail to be removed, when we inquire into the circumstances under which the propagation of the great pox was said to have taken place. I need not surely remind physicians, that the seat of lues (at least during the first stage of its appearance) being chiefly confined to the genital organs, instances are comparatively rare in which it is propagated in any other way than during coition. Can we, then, by any stretch of imagination, conceive of lues having ever existed in such a form, as that in the very commencement of the disease it should be diffused over every part of the human body, the genital organs excepted? This is a circumstance which we can well suppose may take place in the yaws, but certainly not in lues. Montesaurus, Pinctor, and Sabellicus, authors who wrote on the disease from the year 1490 to 1506, speak of the disorder as commencing with the eruption of pustules over the body, but say nothing of the genital organs being affected. Montagnana must have adopted the same view, otherwise he would never have recommended to a bishop, who was ill of the great pox, such a remedy (along with evacuation) as moderate coition.

It follows, then, from the pustules being spread over the outer surface of the body, that the morbus gallicus of the 15th century, although very frequently produced during coition, was no less communicable by simple contact. This is certainly not the character of lues; it is rather the well known character of the yaws. The mere contact, for instance, of the lips was said to produce infection. This we can readily understand, for it is well known that eruptions on the mouth and lips are particularly liable to occur as the earliest symptoms in frambœsia. Hence may be explained why the early writers on the French pox have so frequently and pathetically expatiated on the danger to be apprehended from "an infected lover," as Astruc has it, "wantonly involving the lips of his sound mistress in his, or an infected mistress pressing the lips of her fond lover." "I knew," says Benedict Victorius, "a healthy young man, who was frequently accustomed to kiss a woman who was ill of the French disease, and, by all that's sacred, without coition, yet he was seized with the same complaint." Another example to a similar effect is told by Musitanus. He assures us, that some Surrentine nuns caught the distemper from merely kissing a child who had sucked an infected nurse. This we may readily enough believe, supposing the disease to have been frambœsia, and not lues.

Again, the morbus gallicus, when it first broke out, was said to be even communicable through the medium of infected clothes or linen. This, too, is a circumstance that belongs far less to lues than to the yaws. It was also the universal persuasion entertained in the 15th and 16th centuries, that the great pox might be caught, not only from drinking out of the same cup, with an infected person, but from lying in the same sheets with him, from wiping the mouth and lips with the same towel which he had used, or from wearing the same clothes with him. Instances of infection from all these causes are cited by Nicholas, Massa, Fallopius, Botallus, and others. Hildanus gravely relates a story (which I should scarcely think of quoting, if it were not to illustrate the opinion once held of the great pox) of a young lady of fifteen, who, upon the occasion of some festival given in a nobleman's family, had changed her clothes with a young gentleman, and by only wearing a pair of drawers which had been infected by him, had contracted pustules and venereal ulcers in the pudenda.

This testimony is nearly sufficient for the purpose which I have in view. It proves, that the disease known in the 15th century, to which such symptoms and easy mode of infection were attributable, could not possibly have been lues, nor, indeed, could it well correspond with any affection save that of the yaws. But every doubt on this question ought surely to be dissipated, if we could produce evidence that the *morbus gallicus* of the 15th, and of a part of the 16th century, had been actually, during these several periods, subjected to a comparison with the yaws of the West Indies, and that it was found to be the self-same complaint. Brassavolus decidedly states, that the French disease, or one exactly like it, was peculiar to the natives of the islands lately discovered in the West Indies. Roderic Diaz, Montanus, Fallopius, Gonsalvo Fernandez de Oviedo, Guiccardini, Francis Lopez of Gomara, and Father John Baptist du Tertre, subscribe to the same opinion. The last mentioned author, who resided long in the West Indies, strenuously maintains, that the filthy distemper named *Epian*, was really the venereal disease; that it was in a manner hereditary to the natives of those islands, who not only contract it by venery, but that it likewise breaks out spontaneously among them, owing to their bad manner of living, and to the unwholesome food which they eat.

Such is the evidence that the great gore or pox of the 15th century was the self-same disease which is well known at the present day under the appellation of Framboesia Africana. It was accounted venereal, because, like the yaws, it was most frequently communicated by coition; but it was at the same time universally maintained that the affection was liable to

spread by simple contact. Nay, so infectious was the disease conceived to be, that Jerome Fracastorius and Schelling argued, that it could be transmitted through the medium of the atmosphere. Victorius published what he conceived to be a confirmation of this opinion, for he stoutly maintained, that he knew some honest nuns, who, though they were confined in the strictest manner, still caught the venereal disease. So prevalent, indeed, was the opinion that the air itself might prove a medium of infection, that it formed a ground of accusation against Cardinal Wolsey, who was accused, while labouring under the French disease, of having whispered in the ear of the king, and by this treasonable act, of having run the risk of poxing his royal master. Even the public baths were considered as liable to communicate the disease; and hence, as Swediaur imagines, the disrepute into which they soon afterwards fell throughout the whole of Europe. In short, the fear of contagion was so very great, that there were few governments who did not conceive it necessary, for the sake of the public weal, to frame laws against the unclean. The Parliament of Paris, in the year 1496, prohibited, under pain of death, those who were infected with the great pox, from conversing with the rest of the world, and obliged them to retire into the suburbs of St Germains, to houses and barns set apart for their reception; and, in the following year, James IV. of Scotland banished all who were afflicted with "a contagious sicknes, callit the Grand Gore," to the island of the Inch, in the Frith of Forth, threatening those who disobeyed his commands by still remaining in Edinburgh, that they "sal be brynt on the cheike with the marking irne, that they may be kennit in tyme to cum." Now, nothing but a very infectious disease, communicated in various ways besides by coition, could have suggested such strict regulations; and it is a curious fact, as I shall shew, that, when the sibbens appeared in Scotland at the commencement of the 17th century, a similar separation of the infected from the rest of the community was considered to be a measure of the utmost expediency.

The next question, however, is, to what causes did frambœsia, when it appeared in the 15th century, owe the virulence which it acquired? In answer to this question, it has been explained, that uncleanliness and deficient nutrition are to be regarded as the true causes by which this affection is predisposed to acquire a more than ordinary degree of virulence. That the general habits of many countries in Europe were far inferior to those of the present day in point of cleanliness, might be readily proved by a reference to many old authors, who have treated of the manners of the times in which they lived. And with

regard to deficient nutrition being another cause, it is certain that, in the 15th century, a greater degree of poverty prevailed among the lower classes than was experienced in any former period. The wealth of many of the states of Europe had been drained, by long and expensive wars. The feudal system was grown too bulky and unmanageable; and monarchs, in seeking the most direct way to put it down, had limited the number of a baron's followers. The consequence was, that lands which had been let to retainers in lieu of personal service, were recalled, in order that they might be cultivated under a more profitable system of management. Large inclosures being accordingly demanded for pasturage, the smaller tenantry, of whom the population of most of the countries in Europe chiefly consisted, were ousted of their possessions; and, until they had time, by active industry, to recover from this sudden revulsion, were reduced to the greatest state of want. Hence the various periodical visitations of famine with which Europe was afflicted during the 15th century. Arguing from these facts, a scanty nutrition may be considered as the predisposing cause that gave rise to the great virulence of framboesia (or, in other words, the morbus gallicus), when, during the period we have been considering, it first broke out in Europe. An admission, however, must be made, that if my conclusion be valid, it does not necessarily imply that this disease was, even in the present instance, of European growth. I rather agree with Swediaur in the belief, that affections of this character are not the production of any particular clime or country, and that syphilis has already travelled more than once round the globe.

But however probable it may be, that when framboesia first caused a general alarm during the 15th century, it had actually originated in Europe, much of it must have had a very different source, otherwise the disease could scarcely have spread so rapidly, as to lead philosophers to believe that the atmosphere itself was a medium of infection. It must, therefore, be recollected, that the close of the 15th, and commencement of the 16th century, formed a remarkable era of geographical discovery, and, according to Gonsalvo Fernandez, an affection resembling in every respect the French disease existed in Hispaniola, when this country was first visited by the Spaniards. Thevet states, that the Negro slaves, who were purchased by Europeans, brought the disease called by them the Yaws, fresh from Guinea, before they were landed; "nor does it differ in the least," as he adds, "from that which we call Venereal, either as to the ulcers or other symptoms." Bontius affirms, that the same disease was endemial in the Molucca Islands, which were the resort of the Dutch. Reasoning, then, from this evidence, we are scarcely entitled to doubt but that navigators were

frequently infected during their intercourse with the savage people whom they visited, and that, bringing the yaws with them to their own country, the contagion had thus been more universally diffused throughout the general population of Europe, than it otherwise would have been.

Such is the evidence, which, I think, incontestibly shews that the morbus gallicus of the 15th century cannot be referable to any known disease, except frambœsia. I shall, therefore, next consider the affections with which it was more or less confounded during the universal panic that prevailed.

Section 3.—*Evidence that Lues did not begin to acquire the title of Morbus Gallicus until Frambœsia had almost disappeared in Europe.*

In entering upon this department of our inquiry, I must preface it with an acknowledged truism, which few I think will be disposed to contend with me,—that syphilis and gonorrhœa, like frambœsia, are susceptible of different degrees of virulence. And if I am of opinion that their respective antiquity is so far back as to precede all written records,—as to be coeval even with the dispersion of the human race over the surface of the earth, I am also inclined to think, that the peculiar symptoms of any of these diseases may exist for a series of generations in such a mitigated state as to attract comparatively little notice; yet, from a variety of circumstances, causes may arise capable of imparting to a subsequent race of human beings a predisposition to receive either syphilis, gonorrhœa, or frambœsia, in such a virulent form, that the world will be led to imagine that a new disease has sprung up. In fact, it was under such circumstances that frambœsia was announced three centuries ago. "A new disease," said Joseph Grunbeck, Alexander Benedict of Verona, Leonicenus, Gilinus, Montagnana, Gasper Torrella, and a cloud of other writers of that period, "has arisen among us; it is unknown to Hippocrates, Galen, Avicenna, and other older physicians;—it is unknown to the moderns;—it is a new plague sprung up in the world, contracted by lying together and contact,—it is owing to the pestiferous aspect of the stars,—it is a most horrible and terrible prodigy, unheard of, hated, and altogether unknown,—it was sent from the citadel of the immortal gods upon the French." Such was the senseless cry raised up by the physicians who lived at the close of the 15th century; and it would perhaps have been more creditable to their successors, if, instead of perpetuating the clamorous verbiage of an ignorant age, they had rather inquired if a cause did not subsist, which might have rendered certain venereal ulcers (known

probably to the oldest medical writers) virulent to a degree that, until the 15th century, had been unprecedented. But this is not the whole of the false reasoning with which this irrational announcement of a new disease was accompanied. Gonorrhœa, an affection long previously known in the common stews by the name of *Brenning*, the subject even of various ordinances in the royal brothels of Queen Jane of Avignon, and the episcopal ones of the Bishop of Winchester, was either confounded with lues, or no less advanced to the rank of a new disease. A similar confusion has prevailed regarding the nature and origin of frambœsia; while successive hordes of writers, from Joseph Grunbeck de Burkchausen, down to our modern theorists, have perpetuated the blunder. But this confusion is by no means universal, and forms no exception to the general remark, that the disorders usually considered venereal are never sufficiently distinguished from each other until the science of medicine has attained a high state of advancement. For, although the Hindoos state, that a venereal affection, to which they give the name of Bâo, or Persian fire, has existed from time immemorial in Hindoo and Upper Tartary, yet we are left in considerable doubt whether, by this term, is implied any one affection, frambœsia, lues, or gonorrhœa; or whether any two of these diseases, or even the whole of them, are not included under a single term. There is one fact, however, which is a very remarkable one in the history of the various affections, that, in the 15th and 18th centuries, were confounded together under one common name, *gore* or *pox*, and it is this—that each of them were endowed with increased virulence.

But I hasten to mention the other affections besides gonorrhœa which were confounded with lues.

It appears, from a letter still extant, bearing the date of 1488, by Peter Martyr, a learned man, attached to the court of Spain, that elephantiasis had been mistaken for the morbus gallicus *. This mistake could, however, have been but rarely made, particularly as elephantiasis was long the acknowledged leprosy of Europe, the symptoms of which must have been familiar to most practitioners.

The third disease included, though improperly, under the name of the morbus gallicus, was genuine lues. An example of this mistake occurs in the letter, to which I have adverted, of Peter Martyr, where one of his friends is represented as labouring under the *morbus bubonum*. But to show what imperfect notions were at the same time entertained of this disease, it is sufficient to state, that Martyr mentions that it was named by the Italians *the French disease*, by some physicians *elephantia-*

* This letter is given in Swediaur's Treatise on Syphilis, vol. i. chap. 2.

sis, and by others it had even a different appellation. The writer then proceeds to detail the symptoms of the morbus bubonum, which certainly appear to be those of lues. Swediaur supposes that lues was known in the year 1485, under the name of the pestis inguinaria; and he quotes an epitaph, from a Spanish church of this date, intimating that a certain nobleman had died of this complaint. But the term *pestis inguinaria* is an equivocal one, and may apply quite as well to the common plague of Tunis and Algiers.

These two examples, the last of which is a doubtful one, form the only cases on record which can be discovered during so long a period as nearly fifty years, wherein, by the term morbus gallicus, lues might have been implied.

On the other hand, the most satisfactory proof which can be given, that lues was *not* the affection generally acknowledged as the morbus gallicus, when it first broke out, is this: That the venereal bubo is not once mentioned in any medical treatise published on the subject, until the year 1533, when it was announced by physicians that the disease had changed its character, and that it possessed a perfectly new set of symptoms. Astruc, who searched with the greatest industry every possible medical record, to determine the question, whether the venereal bubo, a pathognomonic symptom of lues, was present in the morbus gallicus before the year 1533, is compelled to make the following admission: (I quote it, because it is the best of evidence to the point)—"It is not to be supposed," he remarks, "that the physicians, who had written on the venereal disease before the year 1533, should, all of them to a man, have been so negligent as to omit the mention of so extraordinary symptoms in that distemper as a bubo, and which all the later physicians have so largely treated of, if that tumour had been observed before the year 1533."

But it is now expedient to attempt an explanation of so extraordinary a circumstance. The fact is, that, from the year 1520 to the year 1533, the *true* morbus gallicus, which was nothing more than frambœsia, was in the progress of being gradually subdued. A great political improvement was taking place throughout the whole of the states of Europe. The revival and extension of commerce, promoted by the discovery of the western world, and an improved state of agriculture, had introduced wealth and plenty into the land. Consequently, the cause to which frambœsia owed its virulence (if not its very existence), namely, want, and with it imperfect nutrition, had ceased to operate, and thus the disease began to disappear. But it is remarkable that, in an exact ratio with the gradual extinction of frambœsia, lues venerea seems to have gained ground.

indicating that the latter was a disease, rather the product of luxury than of want. Certainly, the symptoms of lues do not depend for their development upon the same predisposing causes as frambœsia. In the present case, commerce had introduced an influx of wealth among the states of Europe, crowded cities had sprung up, and, as a consequence, sexual licentiousness. Here, then, is a sufficient cause to explain, why a great degree of virulence should have been imparted to syphilitic affections, which probably did not differ in their nature from those which have been expatiated upon by every ancient medical writer, who has treated of the vices and diseases of the crowded cities of Greece and Rome. But that the virulence of lues should, in the 16th century, have increased to a degree unknown to ancient times, enters perhaps more into the history of the abuse of mercury, than many practitioners will be disposed to admit. This interesting investigation I shall undertake on some future occasion.—In the present treatise I confine myself to the history of frambœsia, reposing on the incontestible fact, that the symptom of buboes was not generally considered as a character of the morbus gallicus, until fifty years after this disease first broke out, which was the period when frambœsia was disappearing. Lues, in an aggravated form, then excited alarm, and even usurped the name of the morbus gallicus, or great pox,—although the latter term had been previously assigned to the large pustules of frambœsia, or the *true* morbus gallicus, in contradistinction to the lesser ones of variola.

But a question is now naturally suggested,—if any of the medical writers of the 16th century ever once suspected that they had confounded together two distinct diseases? *They did not.* The difficulty presented by the appearance of a set of symptoms unusual to the morbus gallicus, was easily got rid of by a theory (which no one for a moment ever dreamt of doubting), that a venereal affection may not only at different periods occur in a more or less virulent form, *but that in the course of time it may, in correspondence with this change, absolutely display a new set of symptoms.* This theory was calculated to lead to the most extravagant and ridiculous notions concerning certain imaginary transitions which the French disease was supposed to undergo. At first, it was announced that fewer pustules had begun to shew themselves,—that the disease had considerably abated, yet that it had met with an accession of two new symptoms, namely, the alopecia, or falling off of the hair *, and the phyma, or tumour of the inguinal glands. The bubo was accordingly expatiated upon by Nicholas Massa, Lobera,

* An effect that appears (as I may probably shew hereafter) to have arisen from the very general use, or rather abuse, which was made of mercury in the treatment of the morbus gallicus.

Gallus, and others. But Brassavolus, Hercules Saxonia, and a host of other writers, did not rest here; they maintained that the great pox was manifestly passing into a clap. "Neither the appearance nor violence of this disease," says Andrew Cesalpinus, "has been always the same. In the beginning, pustules, and corroding ulcers, pimples on the face, and pains of the loins, were frequent. After the fortieth year, all the symptoms became lenient, and the pustules were fewer; there were more of the grumous tumours, the pains had ceased, or at least were much milder; but the falling off of the hair had then commenced, along with the decay and dropping out of the teeth. In our times, after the eightieth year of the disease, a running has become more frequent, accompanied with ulcers in the pudenda, which continually discharge a sanies. This is named a gonorrhœa, and in females the whites."—But speculations were by no means exhausted. Medical men anticipated a farther mitigation and change of symptoms which the morbus gallicus would undergo. Alexander Trajan Petronius conceived that the disease would in the course of time gradually adapt itself to the diet, air and situation of Europe, so that, at last, it would either leave us altogether, or, by insensibly degenerating into some European disease most akin to it, eventually vanish altogether. But Laurence Joubert, in the year 1577, announced to the world that so desirable a transition had even then been consummated. "This exotic complaint," (the great pox), he exultingly assures us, "has become so much milder, that, in its declination and old age, it has at length put on the form of a simple itch."—But it would be trifling with the patience of my readers to dwell much longer on these absurdities. Unfortunately too many of them have been perpetuated. In later times, Astruc has advocated with warmth the change of symptoms which the morbus gallicus was supposed to have undergone, and this doctrine has even met with some degree of support from the cautious Swediaur. This is the more remarkable on account of the admission which he has freely made, "That the syphilitic disorder, on its first appearance, until 1524, was, in its effects, nature, and symptoms, much more like the elephantiasis, the African yaws, the sibbens of Scotland, and the new disease in Canada, than the mitigated syphilitic disorder, such as we see it at present in Europe."

The evidence which, in this section, I have undertaken to produce is at length completed. I have attempted to shew, that the disease originally known under the name of the morbus gallicus, was in reality frambœsia,—and that, when this affection was disappearing in Europe, lues venerea was erroneously considered to be nothing more than a modification of it.

SECTION 4.—*Historical evidence, shewing that, in the close of the 17th and commencement of the 18th century, Frambœsia, under the name of Sibbens, raged in certain districts of Scotland, and excited a terror which afforded a correct epitome of the general panic, that, two centuries before, had been universal in Europe.*

Although frambœsia was greatly subdued in the middle of the 16th century, it has occasionally exhibited faint signs of existence in various districts of Europe, but more particularly amidst the haunts of uncleanliness and poverty. It was at the close of the 17th century, that the disorder named sibbens appeared in Dumfriesshire and Galloway.

But before giving the history of this disease, it will be expedient to prove its complete identity with the Frambœsia of the West Indies. In the minute description which Dr Gilchrist sixty years ago gave of sibbens *, it is impossible not to be struck with the identity of the two affections. Doubts, however, have been long entertained on the point; but these are, I think, referable to two general causes,—first, to the incorrect, and even fabulous accounts which were published relative to the yaws; and, secondly, to the difficulty, which has too often subsisted, of distinguishing the eruption which characterises sibbens from syphilitic ulceration with which it was often confounded. In this case, observations from persons who have seen both diseases must be particularly valuable; but none exist. Dr James Thomson on this subject, remarks, that he has by him the notes of an old practitioner of Jamaica, who went home to a part of Scotland many years ago, where the sibbens was prevalent; and that these remarks being made without any allusion to theory, *tend to confirm the identity of yaws and sibbens in many particulars.*

My own personal observations certainly relate to the sibbens alone; but, from the description given of the yaws by Dr Thomson, no doubt is left in my mind of their identity.

The strongest argument, however, which has yet been urged in favour of the distinction of yaws and sibbens, is to the following effect: It is said, that, while in the former there is a complete indemnity from a second attack, this indemnity does not exist in the last named disease. This distinction has been chiefly advocated by those who, with the greatest want of judgment, have considered, and even treated, sibbens as a variety of lues. But Dr Gilchrist, who had the best opportunity of seeing

* Medical Essays and Observations, vol. iii. p. 154.

the disease when it raged several years ago in Galloway and Dumfriesshire, offers no evidence either for or against this view. Dr Adams, who sojourned some time in the west of Scotland for the purpose of observing it, is on this point equally silent. As far as my own testimony goes (for, when I was some years ago in the Shetland Islands, several cases of sibbens came under my notice), I could never hear of any individual who had contracted the disease more than once.

But there is *internal* evidence in this affection, to shew that there is really an indemnity from a second attack. It must be admitted, for instance, that where uncleanliness and poverty exist, the disease is more contagious than lues or gonorrhœa; that having its frequent seat in the mouth, it may be communicated from an infected individual, by drinking out of the same vessel with him, or by smoking out of the same pipe,—practices which, in most of the Highlands of Scotland, are universal in the families of the peasantry. If, then, there were no *natural* check to the extension of the sibbens (for cleanliness as an artificial preventive has been hitherto little employed), the affection would be as common as the itch, from which few of the poorer families are scarcely ever free. The natural check, then, which limits the extension of the sibbens, is, that, like rubeola and variola, it is only communicable to an individual once in his lifetime.

Swediaur is decisive on this question. He made many inquiries in Scotland to solve it, and learned that it was the prevailing opinion, that an individual could receive the infection but once in his life. In this respect, therefore, the affection agrees with the yaws.

But the identity of yaws and sibbens cannot be better supported than by keeping in view the description given of the latter disease by Dr Gilchrist and Dr Adams, and comparing it with such accounts of the yaws as have been published by West Indian practitioners.

It is said by Dr Thomson, that, before the eruption of yaws appears, it is not uncommon for the whole surface to be covered with a white scurf, which looks as if the skin was dusted with flour. Dr Gilchrist also states, that sometimes the sibbens commence with a *dark* or *grey* scarf; and, that at other times, the scarf-skin is thrown off in the form of fine *white* net-like flakes; and that, upon a renewal of the skin, the same process is repeated from time to time.

It is next observed by Dr Thomson, when describing the progress of yaws, that small pimples or papulæ may be seen on the forehead and other parts of the disease, which continue to increase for six or ten days, when they get a crust at the top, beneath which ill-formed pus can be detected. A similar cir-

cumstance takes place in sibbens. Dr Gilchrist relates, that the sore or pustule of the sibbens is crusted over with a black scab, and that an ichorous humour is often found to ooze from the cracks at the side of it. In this second stage, then, of the disease, the characters of yaws and of sibbens seem identical.

The symptom which next succeeds during the progress of each affection, is the shooting up of the red fungus; and here may be found some remarkable coincidences still tending to confirm the view which is here inculcated. In both yaws and sibbens the shooting up is irregular; some of the sores may be merely *pustular*, and others, namely, those from which a fungus shoots up, may be *tubercular*; and these two different kinds of sores may co-exist. Dr Gilchrist also observes, "An itchy titter or ringworm breaks out in a round form, which, by scratching, or of itself, turns raw and does not scab, but oozes out an ichorous humour. In a short time a fungus or fungous substance sprouts up." Now, this description of the sprouting of the fungus from a sore that does not scab, corresponds with the description given of the most frequent origin of the yaw. The author of a paper on this disease, published in the year 1771 *, after remarking that "the disease makes it first appearance in little spots on the cuticle, level or smooth with the skin, at first no larger than the point of a pin, which increase daily and become protuberant like pimples," thus proceeds: "Soon after the cuticle frets off, and then, instead of finding pus or ulcer in this small tumor, you may find white sloughs or sordes, under which there is a small red fungus growing up out of the cutis." In this respect, therefore, the West Indian and British affections correspond with each other.

The next circumstance of material agreement between yaws and sibbens, is certainly the most striking one. This is in the form which the excrescences assume. "They increase gradually," says a writer on the first named disease, "some being less than the smallest wood-strawberry, some being as big as a raspberry, and others even exceeding in bigness the largest mulberries, which berries they very much resemble, being knobbed as they are †." How closely this description will be found to correspond with that of the excrescences named sibbens, I need not add. "In a short time," says Dr Gilchrist, "a fungus or spungy substance sprouts up, much like a rasp or a strawberry, elevated one-half above the surface, and, when fully formed, appears as if set in a socket cut in the flesh exactly to receive it. These excrescences are rather indolent to the touch, and

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* See Vol. vi. of the Edinburgh Collection of Medical Essays and Observations.

† Medical Essays, &c. vol. vi. p. 312.

their colour is not remarkably different from that of the fungus of other sores. From this berry-like rising in the venereal sore, the disease is said to be denominated the SIVVENS; *sivven*, in the Highlands, being a common name for a wild rasp."

Again, yaws and sibbens appear to agree in the parts of the body which they are wont to attack. "Yaws," says the writer in the Medical Essays whom I have quoted, "appear indeterminately on all parts of the body; but the most and biggest are generally on the groins, about the privities and anus, in the armpits and face." And, in like manner, sibbens, according to the testimony of Dr Gilchrist, have their seat in similar places. He assures us, that infants of the month have a redness in the lower part of the belly, buttocks, thighs, and parts of the legs; that, in some of these, there has been an inflammation and watery shining swelling of the pudenda; that, in somewhat older subjects, are successive crops or clusters of small red pustules, as large as the palm of the hand, over all the trunk, as well as limbs; that scabby eruptions are often met with on the scalp, forehead, inside of the thighs, groins, and parts contiguous, along with frequent small hard masses beneath the skin, that cause most troublesome itching; that inflammations, sorenesses, and excrescences about the fundament are frequent.

Nor do the symptoms of yaws and sibbens less disagree when they make their incipient appearance in the throat, as is very frequently the case. Dr Thomson has observed, that, "when the disease attacks the throat, it is extremely distressing; the ulcers resemble a piece of toasted cheese; they never have any fungus; and before the susceptibility is destroyed, the patient is deprived of the greater part of his palate." Now, this description coincides exactly with the account given of sibbens by Dr Adams and Dr Gilchrist; they describe an ulceration on the uvulæ, tonsils and neighbouring parts, sometimes raw, and sometimes covered with a white slough. But the curious circumstance is, that the self-same homely comparison made use of by Dr Thomson, a West Indian practitioner in the course of treating a patient with the yaws, has suggested itself to a British physician while examining the throat of a sibbens patient. Dr Adams acquaints us, that a practitioner of New Galloway (Dr Trotter) very aptly describes these appearances "as resembling a piece of toasted cheese." It is also agreed by those who are familiar with sibbens, that the destruction of more or less of the uvulæ and tonsils is, no less than in the yaws, too frequent a termination of the disease when it attacks the throat.

With this mass of evidence I shall be contented; trusting it will be of sufficient force to urge the conviction, which has indeed been long entertained by many medical men of close

attention, that yaws and sibbens are to be considered as the self-same disease.

After these general remarks, I shall consider the history of this disease when it broke out in Dumfries-shire and Galloway.

From what polluted source the contagion was derived is very doubtful. The date of the infection was by some referred to the period when Cromwell's followers overran the country; others traced the introduction of the disease to the year 1700, when a party of soldiers was dispersed about the villages; while the popular voice assigned the importation of it, through the medium of some sailors, directly from the West Indies.

Any one of these sources is a probable one. During the 16th and 17th centuries frambœsia has been occasionally described by European physicians, from whom we may learn that, though the affection has been generally subdued in the British Islands, or on the Continent, yet that it has still lingered in a few districts. Dr G. Harvey, who noticed the disease, distinguished it under the name of a liminary or middle pox. He has described it as indicated by such symptoms as red and yellow pimples, like mulberries, appearing along with ulcers, and affecting the perineum and throat,—adding that the disease was communicated by using the same linen in common with infected persons,—and, that "the infection caught by kissing was worse than by copulation." Wiseman and Turner have also alluded to the same disease, though less perspicuously; and it may be found described, though vaguely, in the works of Van Swieten, Plenck, and Boerrhave. By still later writers it has been noticed, having been named by them a pseudo-syphilitic or syphiloid affection. Arguing, then, from these facts, it is by no means improbable but that the disease might have been introduced into Dumfriesshire and Galloway from England.

Nor is the supposition less plausible, that, instead of being brought from England or the Continent, it might have been imported from the West Indies. It is natural to expect, that, considering our great intercourse with the West Indies, this disease must have been occasionally introduced in the Britsh islands. But it has been found in England at least, that it cannot subsist long where there are habits of daily ablution, totally different to the conditions under which it has acquired a settlement among the unfortunate blacks.

But it is unnecessary to offer any more conjectures on the source and introduction of the infection. Suffice it to say, that the general alarm which the diseased excited, when it first broke out in Galloway and Dumfriesshire, afforded an interesting epitome in the history of medicine of the similar panic, attributable

o the self-same cause, which 300 years ago agitated the whole of Europe. " Great were the perplexity and distress," says Dr Gilchrist, " the suspicion and terror caused by it wherever it came; and, hitherto, nothing has been able to prevent the spreading of it. Ulcers," he adds, " penetrated as far as the muscles, leaving them quite bare, and seeming to eat superficially into them. The disease has been known, though rarely, to affect the bones, but never the large and more solid ones. Several have lost teeth, along with the sockets; and some of the bones of the cheeks and nose have come away. A portion of the alæ nasi, or gristly part of the nose, has been destroyed by it." This account is a very remarkable one. It shews that the sibbens once displayed in Scotland all the virulence of the West Indian yaws. It is in the remembrance of some old inhabitants of Galloway, that, when the disease raged in the country, so great was the dread of contagion, that it was not uncommon for a cottage infected by sibbens to have a guard of soldiers placed over it, whereby the wretched, too probably in a state of half starvation, were subjected to strict insulation for a certain period; and thus their miserable hovels were converted into a kind of yaw-houses. Here their sufferings met with little or no relief, even from medical practitioners, who felt some revolt in entering the threshold of these infected huts.

The history of this disease, as it has occurred in the Shetland Islands, appears to be in no respect different. It would seem, that, many years ago, its virulence spread terror throughout this group of Islands. In former times great penury prevailed. From various political causes, the inhabitants were, for a long series of years, grievously oppressed, by a succession of tacksmen, who, being interposed between them and the Crown, intercepted their just complaints, despoiled them of the small inheritances they possessed, and finally reduced them to a depressed and abject state of want. Conjoined with this cause, which gave the Shetlanders a predisposition to receive, under its worst form, any such disease as the sibbens, if introduced among them, the natives were accustomed (not unlike the Negroes of the West Indies) to relish food of the vilest quality. The fish they ate was usually in an incipient stage of putrefaction; and even of this description of food they were nearly bereft, owing to their gains in fishing being exacted by their landlords, as payments in kind for rent. Such, in short, was the condition of this people about a century ago, when, as it appears from cotemporary writers, an infectious disease was introduced among them, that sufficiently well corresponded in its general character with the sibbens of Galloway. So great was its virulence, that corroding ulcers attacked the alæ nasi, while the

hairs of the eyebrows and the scalp fell off and returned no more,—a circumstance which is well known by West Indian practitioners to often occur in the yaws. Sir Robert Sibbald has quoted a taunt applied to the natives of Fair-Isle (an island belonging to the Shetland group) " That there was not a hair between them and heaven." It is also curious, that, with the view of resisting the sibbens, named by the Shetlanders a *bastard scurvey*, huts were built for the reception and insulation of the infected, exactly after the manner of the yaw-houses of the West Indies. Brand, who made a perambulation through this group of Islands in the year 1717, thus alludes to their miserable hospitals. " There is no sickness or disease," he remarks, " that this country is more subject unto than the *scurvey*, as is *Orkney* likewise. And sometimes this scurvey degenerates into a kind of leprosy, which they call a Bastard Scurvey, and is discerned by hairs falling from the eyebrows, the nose falling in, &c.; which, when the people come to know, they separate and set them apart for fear of infection, building huts or little houses for them in the field. I saw the ruins of one of these houses, about half a mile from Lerwick, where a woman was for some years kept for this reason. This bastard leprosy, they judge, is caused by the many grey fishes, such as sillucks, piltocks, &c. which they eat; for bread failing, many of the people in the summer time, often for four or five months, will not taste thereof. These fishes are then almost their only meat, and especially the livers of them." Such was the sibbens in Shetland about a century ago.

When frambœsia thus raged in various districts of Scotland, under the name of sibbens, its true nature as we might expect, was little understood. Sailors who had visited the West Indies, pronounced the affection to be the yaws, and they were correct. Medical men contested with them the propriety of the appellation.

It was in the year 1768, that Mr Hill of Dumfries maintained that the sibbens of Galloway were nothing but a mild variety of the French pox; but, at the same time, he confounded both diseases with gonorrhœa. The example, however, which he brought forward in confirmation of his view, was, in reality, fatal to it. We were informed, that " a young woman went to the country to be cured of a clap, attended with verrucæ, which she called hæmorrhoids; that in a short time she procured him, and some of his brethren, a great number of patients; that her mother, with whom she slept, was first infected; next the children whom she fed; and, lastly, her brothers, sisters," &c. But it is almost unnecessary to remark, that this very infectious character thus attributed to a clap, could only belong to a disease

which must have differed most widely from both lues and gonorrhœa. The sibbens of Galloway were about the same time made the subject of an inaugural dissertation by Dr Freer, wherein the disease was designated a species of the French pox ; while it was seriously proposed, for the sake of distinction, to attach to it the odious name of *the Scotch Pox*. But Mr Hill in reply contended, that Scotland was far from being entitled to so proud a distinction. Some English patients of his had proved to his perfect satisfaction that the disease was indigenous in Cumberland.

In short it appears, that, when this complaint has been mistaken for a syphilitic affection, the error has been far less occasioned by external symptoms, (as no one well could shut his eyes against the raspberry-coloured excrescence, or the sibben), than from the frequent seat of the affection being in the genital organs, and, consequently from its great liability to be communicated by coition. When I was in Shetland, cases came before me where the infection had spread various ways. I visited a fisherman's family where the children were said to have received the disease from drinking out of the same vessel with a sibbens patient. A female whom I saw, had infected the child to whom she had given suck, while the child in return, whose tonsils had been severely ulcerated, communicated it to the nipples of the mother, where it caused much pain and distress. And, again, in my visit to a certain parish in this country (Northmavine) I found that the disease had been introduced there not many months before, by a native from another parish. A girl received it in the course of sexual intercourse, and, as she was of loose habits, it readily spread through her means to several cottages. In short, it was very evident that the most frequent mode in which the affection had been communicated was during sexual intercourse,—a circumstance readily accounted for, when I found few individuals in whom the genital organs, or the adjacent parts, had not at one time or other during the progress of the disease been the seat of eruption.

There is one notorious fact, however, connected with the propagation of the sibbens, which is this : That the disease can only acquire an existence among those classes of people whose habits of cleanliness are neglected. What can more strikingly illustrate this assertion than the wretched state of filth which prevails among the negroes of the West Indies, to whom the yaws has been so long a curse ? And what farther proof can be required than the circumstance, that the sibbens are at present confined in the British islands to certain sequestered districts of the Highlands, where nothing can well exceed the wretched and close state of the habitations, devoid of every comfort, and over-

run with vermin of the worst description. Encreased in its virulence by uncleanliness, the disease raged about sixty years ago in the west of Scotland. "A proof," says Dr Gilchrist, "that it was propagated chiefly by the want of cleanliness is, that it has never got a footing amongst those of better fashion, nor in towns, where, except with the very lowest, greater cleanliness takes place." It was my fate, during a geological examination which I undertook of a retired corner of Britain, to be obliged to make a cottage my head quarters for the space of nearly a month; and during this time I believe that not a single member of the family ever submitted for a moment, except probably on the Sabbath, to an act of ablution *. Is it, then, to be wondered at that cases of sibbens should abound in a district like this? Dr Freer, one of the earliest writers on the sibbens of Dumfriesshire, observing that sibbens never appeared in any place but where the itch prevailed, made this uncleanly circumstance the subject of a curious speculation. He has supposed that the respective causes by which scabies and lues were produced, bore a common analogy to each other, and that, as certain specific animalcula were supposed to be the cause of the itch; in like manner, animalcula of a different kind must be the efficient cause of the French pox. On this principle, he explains the mixed distemper of sibbens. It has been constituted by a cross, mongrel breed of animalcula, which owed their existence to a flirtation between some that were venereal with others that belonged to the itch †.

The importance of cleanliness (as I have before stated) admits of a ready explanation: The poison upon which this affection depends is more or less deleterious, according to the various degrees of concentration which it undergoes; yet, even in its most concentrated state, its action is so gradual and so slow, that, if common acts of ablution were daily practised, long before it could have time to act, it would stand every chance of being either rendered comparatively inert, or even of being totally removed from the surface of the body. Experience has confirmed this view; for, however long the affection may have existed in any district, no farther proceedings have been found

* Soap, as might be expected, was in this tenement almost unknown. I was compelled to send off a two-oared boat, hired at a considerable expence, to undertake a voyage of ten miles and back, for the purpose of importing a pound or two of this necessary exotic.

† Dr Mason Good, has rather supposed that sibbens was a cross production between lues and frambœsia. "Sibbens," says this author, "is a variety of lues, rendered *hybrid* by passing through a constitution already contaminated with yaws." I cannot spare time to take farther notice of these very ingenious theories.

necessary to exterminate it, than to enforce daily habits of ablution among those in whom the disease has not hitherto made its appearance. The consequence has been, that, with the recovery of such patients as had previously shewn decided symptoms of sibbens, an effectual resistance has been made to their propagation. Of this fact, occasional proof has been afforded whenever English sailors have brought over with them the yaws from the West Indies.

In short, sibbens are the engendered product of rank uncleanliness, and sufficiently well explain the efficacy which has been ascribed in the olden times of superstition to holy springs. Let but the judicious treatment of patients afflicted with sibbens be accompanied with the daily immersion of such as are exposed to the contagion in any river or well dedicated to a Saint, as to St Martin who usually cured the itch, St Maine who cured the scab, and St Job the pox, and the sibbens of a whole parish will be eradicated in a twelvemonth. These are no theoretical anticipations. It is but a few years ago, as I am credibly informed, since it was usual for patients in East Lothian who were afflicted with the sibbens, to repair to the shore of Prestonpans, there to make an offering of their leprosy to the Naiads of the Frith of Forth. The result of this act of devotion was no doubt salutiferous.

But, if ablution, besides affording the ready means of resisting the infection of framboesia, can mitigate its virulence, cannot the latter effect be likewise produced from other causes? For what shall we say of the fact, that, although sibbens have subsisted in quarters not at all improved in habits of cleanliness, from what they were many years ago, as in many parts of the mountainous districts of Scotland, that the disease should exhibit none of the virulence which it manifested sixty years ago, when it was the subject of Dr Gilchrist's dissertation? When Dr Adams paid Dumfriesshire a visit about fifty years afterwards, several cases fell under his notice. The seat of the affection was mostly confined to the soft parts of the mouth. The worst effect produced was the destruction of the uvula. He brings forward no instance where phagedenic ulcers had laid bare the muscles, or where the bones were destroyed. In fact, it is impossible to peruse Dr Adams's interesting cases, without being convinced that the disease had undergone, in the course of time, considerable mitigation. My own observations on the state of the same disease in the Shetland Islands, when I visited that country a few years ago, are to a similar effect. Every symptom was mild. Although the incipient papular eruption, the pustules by which they were succeeded, and the peculiar red fungous substance which shot up, might be completely

identified with the appearances which Dr Thomson has represented in the engraving that accompanies his memoir on the yaws, this eruption was neither so extensively diffused over the body, nor was any single pustule so large as to attain the size of a shilling. Nor did I see or hear of any instances in which the tonsils had been completely destroyed, or where the affection was followed by any severe constitutional disease, or confirmed cachectic habit *.

What, then, is the reason that sibbens are no longer formidable in Dumfriesshire and other places? The truth is, that seventy years ago the predisposition to receive the affection in its worst form was less owing to the want of cleanliness in the peasantry (although this constituted one of the causes assigned by Dr Gilchrist), than to their impoverished state. They were to an extreme degree ill clothed, ill housed, and (worse than all) ill fed. It is also remarkable, that the permanence of the cachectic state was generally promoted, as in the West Indies, by the neglect which patients labouring under this calamity experienced. Since that unhappy period, however, a better state of agriculture has been gradually introduced into the south-west of Scotland, which hasgreatly ameliorated the condition of the cottars. The consequence has been, that, under the influence of a more plentiful and nutritive diet, the predisposition to receive the sibbens in a malign form has been proportionally lessened. Even the province of Shetland has been considerably improved, though not in an equal degree with other districts of Scotland. Food is more plentiful, and it is mended in quality; as a proof of which I might state, that the inhabitants have lost much of their relish for the ancient food of the country, which consisted of *vivda* or mutton in an incipient state of putrefaction, as well as *blown fish*. The general consequence is, that, when sibbens appear, they are in a mild form. This gradual mitigation which the disease has undergone in the British Islands, must be considered as one of the most striking circumstances in its history. In the West Indies, a more generous diet has always lessened the severity of the yaws; and, in the British Islands, an effect precisely similar has resulted from the same cause, wherever the sibbens have prevailed.

But I must now draw to a conclusion.—In the course of the last century frambœsia has made occasional visits to other coun-

* Mercury is sometimes given during the eruption; but the disease often runs a course of a few months, and then disappears. I prescribed in the cases which I saw a decoction of woods, and recommended, in the strongest manner, frequent ablution and general cleanliness.

tries besides Britain *. Swediaur has given an interesting account of its appearance in Canada between the years 1770 and 1780; when, like the morbus gallicus of the 15th century, with which it was identical, it was announced as a new disease. To such an extent did it rage, that in 1785 it was found that 5800 inhabitants were infected with the complaint. The terror it excited was exactly the same which, several years before, had been produced from a similar cause in Dumfriesshire; and it was the same which, two centuries and a half before, had convulsed the whole of Europe. The conclusion to which Swediaur arrived, after having described this complaint, I must not, in justice to him, withhold. He was struck, but nothing more, with the exact resemblance which sibbens bore to the West Indian yaws; he was even convinced that "the contagious disease in Canada, as well as the sibbens, presented the identical picture of syphilis in the 15th century." Had he gone one step farther,—had he contended that framboesia, whether under the name of yaws or sibbens, is immaterial, was in reality the self-same affection which had agitated Europe in the 15th century, the necessity of the present dissertation would have been superseded. *But at this very point he stopped.* He quietly fell in with the general error, which had prevailed for three centuries; and contented himself with observing, that an affection, *exactly like* the yaws and sibbens,—an affection which, according to his vague notion, had even a great resemblance to elephantiasis,—began to appear about the year 1483; but that "it had lost by degrees the character of a pestilential and epidemic cutaneous disorder; and that is had ended by becoming mild, as we find it at the present day, and by its being communicated with much less facility." He never once was aware of the absurdity in which he involved himself, by arguing, that a disease, distinguished at one time by a definite set of symptoms, could, in the lapse of a few years, pass into another affection, characterized by perfectly different symptoms. He never once conceived it possible, that, if an admission of this kind were general, it would have the direct tendency to render abortive all his own arduous attempts to classify diseases, and to neutralize his own labours, which had been directed to a determinate and rigid system of nosology. On the contrary, he shut his eyes against historical facts; and, by contenting himself with a mere general remark,—that the morbus

* It is most probably this affection which has been described by Dr Barry, as having prevailed in Cork in the year 1728. Dr Adams published the case of a Danish nobleman who, in the year 1793, was afflicted with the yaws in the Island of Madeira. It was imagined, that the affection was received from the West Indies; but as the patient had, before the eruption took place, been absent from this country ten months, it has been objected that the latent period never could have observed so long au interval. No inference, therefore, remains, but that the disease was, in this case, endemial in Madeira.

gallicus of the 15th century had a *strong resemblance* to the yaws and the sibbens, he never once imagined that predisposing causes might exist, whereby framboesia itself, under the name of the Morbus Gallicus, was enabled to rage among the civilized states of Christendom for a period of nearly half a century, and then disappear. He saw no analogy to this remarkable fact,—no striking epitome of the panic which three hundred years before had prevailed throughout Europe, in the modern history of the sibbens of Dumfriesshire, and the similar disease of Canada. But, thanks to the labours of many of our distinguished contemporary brethren, our knowledge of the true nature of syphilitic diseases is becoming every day more distinct and definite; nor ought it to be confused by a distortion of historical evidence, which admits of being readily explained; nor distracted by doctrines which carry within them the seeds of their own confutation.

Art. VII.—*On Epistaxis, as it occurs in aged Individuals; with an Improved Mode of Treatment.* By William Howison, M. D. Fellow of the Royal College of Surgeons, &c.

In the nose there is a considerable network of bloodvessels, expanded on the internal surface of the nostril, and ramified upon, or covered only by, the thin Schneiderian membrane. Hence, upon any determination of a greater quantity of blood than ordinary to the vessels of the head, those of the nose are easily ruptured. Such vessels, also, must be liable to rupture from shocks, or external injury, offered to the body, in a greater degree than the bloodvessels of any other part. In general, the blood flows only from one nostril, but in some cases it is discharged from both. In the latter, it shews the vessel ruptured to be at a considerable height on the nose, or it denotes a more considerable discharge of blood.

Having repeatedly witnessed distressing cases of epistaxis, occurring at all periods of life, but particularly in the aged, I shall make some remarks upon the inadequate and cruel treatment recommended by writers upon this subject. Any individual, whose lot it has been to witness an aged person repeatedly attacked by bleeding from the nose in great quantity, forced from bed in the middle of the night, during the severity of winter, towels, bedcloths, &c. deluged with blood, the countenance bleached, pale, from weakness, and distorted by the fear of instantaneous death from hemorrhage; the head, neck and shoulders covered with cloths soaked with ice-cold water and vinegar, half naked, trembling with cold; and who has experienced the feelings which every

medical man must undergo, in witnessing an aged individual in this situation, relying entirely upon his efforts and abilities,—I feel convinced, will not think that I go too far in denominating this treatment inadequate and cruel; and that, if any other method can be devised for doing away with such, the time so spent has not been unprofitably employed.

In considering the treatment of epistaxis, as it presents itself in the aged, I shall treat of it under two distinct heads. 1*st*, Of the Local; and, 2*dly*, Of the General, or Constitutional Treatment.

Of the Local Treatment of Epistaxis.—When epistaxis occurs in aged people, and returns too frequently, or continues till the patient becomes faint, it must be put a stop to as quickly as possible. For this purpose, the individual must be placed in the erect position. If sitting upon a chair, the head should be held back, leaning upon the wall with the occiput, or on a pillow; if lying in bed, it must be raised by pillows. The apartment in which the patient is, should be as large and well ventilated as possible, and the free access of pure cold air admitted, by opening the windows or doors. This may be persisted in for the few first days, both during the day, and whilst asleep during the night. A frequent change of the apartment also would prove of advantage. As the individual is generally much disturbed by thirst during epistaxis, repeated drinks of ice-cold water, acidulated by the aromatic sulphuric acid, may be given; or, what is better, the mouth may be only kept continually cold and moist by this mixture, in place of swallowing it, which will both alleviate the thirst, and have a tendency to stop the bleeding. And there can be no objection to sprinkling a little cold water upon the face, applying the palms of the expanded hand and fingers, immersed in cold water or warm, to the temples; and the old fashioned and well known practice of putting a large cold key of a house door down the warm back of the individual.

A large syringe must now be procured, and by means of it a strong decoction of oak-bark, in which sulphate of alum has been dissolved, must be thrown with freedom from the bleeding nostril into the back part of the mouth:—(To make the decoction, ℥ ss. of oak bark may be boiled slowly in lb. iij. of water down to lb. ij.: It is then to be strained, and ℥ss. of sulphate of alum dissolved in it;) and this is to be repeated several times. I have generally thrown in a handful of bark into a pan of water; boiled it until the fluid put on the appearance of diluted port wine, and then dissolved in it the sulphate of alum. Caddis, steeped in this decoction, may also be inserted well up the nos-

tril, to promote the coagulation of the blood, and keep the astringent in contact with the bleeding vessels.

The practice now recommended, I feel convinced, will put a stop to the most profuse hemorrhages; the astringent powers of the oak bark being such, as to coagulate the mucus of the nose, the blood, and every other fluid with which it comes in contact. Its power of contraction over the solids is also so great, that the internal surface of the nose, the vessels ramified upon it, &c. become drawn together, and tanned like leather. In the case of my patient, who had been repeatedly attacked by hemorrhage from the nose, and in whom it was very profuse, a vein having been ruptured by a shock which she received by slipping from off her chair, whilst asleep, after dinner, the oak-bark decoction completely fulfilled the effects now described. The oak bark decoction, besides, possesses no injurious effects to counterbalance its beneficial ones. Unlike the dilute sulphuric acid, recommended to be put into the nostril, by writers on epistaxis, it does not burn the soft parts, or corrode or dissolve the osseous; and, unlike the solution of the sulphate of copper, it does not run the risk of proving injurious to the animal economy by passing into the stomach, or by being taken up by the absorbents.

It does away with the necessity of immersing the individual's head, neck and shoulders, in cold water, ice, snow, or cloths steeped in cold fluids, as recommended by every writer upon epistaxis, and invariably practised at the present day; or of deluging the whole body-clothes, which, under such circumstances, it is impossible to prevent. How often have I witnessed the poor sufferer, dragged from bed, wet to the skin, kept in this chilling state for hours, trembling with terror and cold, attacked with catarrh, and with inflammatory symptoms, at an after period, by this treatment recommended by writers on epistaxis? And how little benefit have I ever witnessed from its efficacy in stopping the hemorrhage, to counterbalance for the disadvantages now described? It is impossible that cold, applied externally to the head or shoulders, can stop profuse epistaxis;—and, allowing that it does, it can be merely momentary; for, as soon as the patient again becomes warm, and the powers of life overcome by the terror and cold revive, the bleeding must return. Sneezing, once induced under these circumstances in an individual predisposed to it, gives such a shock to the animal economy, as to render even the most effectual means for stopping the hemorrhage nugatory.

If the hemorrhage still continues profuse, notwithstanding the means now recommended, and the blood, not being allowed by the plugs to come by the nostrils, flows backwards into the throat, running the risk of suffocating the individual during

sleep, the plugs must be instantly withdrawn, and the nostrils cleared, to allow it to come by them; and a firm sponge passed from the mouth up to the back part of the nostril. This is done by passing a waxed ligature about half a yard in length, by means of a canula through the nostril into the back part of the pharynx, and bringing the end of it out at the mouth; a piece of good firm sponge, of a size not greater than is sufficient for its purpose, is then to be fixed about the centre of the ligature, and drawn back with steadiness, by means of the end protruding from the nostril, so as completely to fill up the posterior nares. In this way, pressure is made upon the bleeding point, and the hemorrhage completely commanded. When the sponge is thus fixed in the back part of the nostril, one half of the ligature will hang from the nostril, and the other from the mouth. The two ends are then to be fixed by adhesive plaster, that passing from the nose to the forehead, and that from the mouth to the cheek; and they are to be retained in these positions for about eight days, or ten; by which time the sponge may be withdrawn, the ruptured vessel having healed up.

I have never witnessed the sponge introduced and retained in the nostril, as now described, fail in stopping epistaxis; but it ought not to be had recourse to, except in cases of urgency. The pain of passing the ligature is described by the sufferer as almost intolerable; the irritation of the sponge is disagreeable, and, in the course of a few days, the fetor arising from the putrid blood, and secretions of the mouth imbibed and retained in its pores, is almost intolerable to the unfortunate sufferer, and to the bystanders. My patient, during the first four days that the sponge remained in, suffered much, passed restless nights, from urgent thirst; her tongue was covered with a white crust, and completely parched; the smell of her bedroom, although large, and the door kept open, was intolerable; and, upon removing the sponge, on the ninth day, it came away covered with liquid blood, and with a fetor so disagreeable as to baffle description. Upon washing it with several basins of water, the fetor was found to penetrate even to its centre, which had become black and putrid; and its smell was such that I could bear its inspection no longer. We added an additional ligature to the end of the one we removed, and repassed it, by means of the other, through the nostril, so that we might at an after period introduce a new sponge, if necessary. For this, however, we fortunately found no occasion, and in two days it was also withdrawn. The irritation of the two ligatures, the one protruding from the nose, and the other from the mouth, also gave considerable uneasiness to the sufferer. The former, as it must always be kept upon the stretch, to retain the sponge in its place, is very liable, and generally does cut the margin of the nostril; which, however,

may be prevented to a considerable extent, by covering it with court plaster. The latter annoys the patient much; lying across the upper surface of the tongue, it renders swallowing difficult, and, if allowed to hang loose, is apt to pass over with the food; an accident which might be attended with disagreeable consequences.

It will be unnecessary for me to state, that the use of the ligature from the mouth is for withdrawing the sponge from the nostril. When we have judged it time to remove the sponge, or that there is no risk of further hemorrhage, it is best done by injecting oak bark decoction up the nostril, so as to soak the sponge completely, and then gradually to lessen its attachment to the surrounding parts, by tightening the ligature passing from the mouth, taking care to leave that from the nose completely loose. After the sponge has been withdrawn, which generally comes away easily by the method now recommended, the oak-bark decoction should be thrown up the nostril three or four times a day, for a week or fortnight. This removes the fetid smell, by its powerful antiseptic properties, strengthens the vascular system, and prevents any return of the hemorrhage.

I now proceed to the consideration of the general or constitutional treatment of epistaxis, occurring in the aged.

A quantity of blood, depending upon the nature of the case, may be drawn from the arm. In the case of the aged, however, we must be particularly cautious, recollecting that the powers of life at that period are very slow in repairing the loss. In most cases of epistaxis, too, the quantity of blood lost, before the appearance of the medical practitioner, is so great as to require but little to be taken by art. The individual must be confined for a period to spare limited diet, and that principally of the solid kind; bread, animal food, potatoes, &c; the less fluid that is swallowed so much the better. Nothing takes off plethora in a more salutary, permanent, and beneficial way, than low diet, exercise, and purgative medicines. Frequent exercise in the open air, as in a carriage with the windows open, will be of advantage, the Peruvian bark, &c.

Since writing the above paper, the aged individual therein alluded to, has this winter been again attacked in as serious a manner as formerly, in consequence of an accident upon the integument covering the ossa nasi, which was followed by serious hemorrhage from the nose. In this instance, I feel happy to say it has yielded completely to the saturated decoction of oak bark, containing sulphate of alum dissolved in it, thrown freely up the

nostrils three or four times in the twenty-four hours during its violence, and once or twice at an after period assisted by plugs completely soaked in the same solution, and then dipped in powdered charcoal, which were kept constantly introduced up the nostrils. I have had no occasion to employ the cold affusion of the head, neck, &c., nor to introduce the sponge through the mouth to the back part of the nostrils,—methods which I have freely reprobated as cruel and unnecessary; and the latter of which, not even the risk of death, could induce my patient again to submit to. I am therefore resolved, in all future cases which may occur to me, to depend entirely upon the practice recommended in these pages.

My patient, I may add, during this attack, was not bled from the arm; although the fulness and strength of the pulse, during the hemorrhage from the nostrils, caused me to hesitate much, whether to perform that operation or not. Upon the stoppage of the hemorrhage, however, it rapidly returned to its original standard, in point of number, fulness and strength; and I trusted to reduction of the diet alone. The debilitated appearance of the individual, in consequence of the loss of blood during the night, which could not be obviated, prevented me from having recourse to the lancet,—and a subsequent period proved that I acted right. If a large additional quantity of blood had been drawn, might not increased debility, effusion of water, &c. into some part of the body, have been the result? whereas she has now recovered strength, and enjoys a superior state of health compared to what she had previous to the epistaxis, being less tormented by noise and heaviness in the head.

My objection to throwing a saturated solution of sulphate of alum up the nostrils in epistaxis (and particularly a warm one), by means of a large syringe, would be its filling up the antra maxillaria, the frontal sinuses, &c. and there depositing the crystallized salt. I have been repeatedly surprised, that little or none of the fluid injected at times returned during the operation; and my patients have repeatedly objected to my throwing it up at bedtime, alleging as a reason, that large quantities of water came away every time they turned themselves during sleep. Where, then, could the injected fluid have been retained, in such quantity, and for so long a period? Certainly in the antra maxillaria, frontal sinuses, &c. Dr Hamilton, our worthy and experienced Professor of Midwifery, mentions a case in which he introduced his hand into the uterus of a woman, who had been long using a solution of alum as an injection, and he found that cavity entirely filled up with crystals of the salt; so much so, as to require considerable violence with the hand, and the long continued use of tepid water injections, to clear it out. Neither this, however, nor any other objection, can be offered

against the oak-bark decoction, and it possesses powers equally, if not more astringent.

In future, it is my intention to give up the sulphate of alum entirely, for the reason above mentioned, namely, the risk of its stagnation and crystallization, trusting to the oak bark alone, as an effectual and safe remedy against epistaxis.

9. Nicolson Square,
January 1826.

Art. VIII.—*Remarks on the Seat of the Disease named Lead Colic, or Metallic Colic, the* Colica pictonum *of most authors.* By M. Thomas de Trois Vevres.—From the Journal Universel.

In general, the metallic colic admits of innumerable modifications, not only at its commencement, but during its progress. With respect to its character, or to its prevailing symptoms, it exhibits two features; these are the symptoms which manifest the prevalent affection of the brain, as well as those which are indicative of that of the abdomen.

In both modifications the commencement is more frequently characterised by lassitude, or a feeling of dulness or of weakness, or of pain in the limbs, and above all of the joints; by uneasiness, anxiety, and embarrassment, or slowness in ideas and motions. The patient, when he is in a state of quiescence, becomes drowsy, or his sleep is, on the contrary, difficult or interrupted. During the first period the patient goes on with his usual occupations; frequently even he does not quit them during the whole course of the day. The abdominal functions are still most commonly undisturbed,—the dejections are easy,—there is absence of pain in the abdomen.

This state may continue for a long time without inconveniencing the patient; but, more frequently, after several days, he becomes constipated; he feels wandering pains in the abdomen or extremities; there is a sense of weight in the head; or cephalalgia occurs, sometimes even numbness of the senses, or watchfulness; cramps in the limbs, or tremors continued or intermitting; the pulse, however, is calm, as well as the respiration. But, let us follow the disease when it is left to itself, or when, after many attacks, it undergoes its more serious course. Nothing is more insidious than its progress; sometimes it is mortal, when it discloses its existence by nothing more than fugitive symptoms. In general, a yellowish livid

tint, an unusual look, announces the highest degree of severity; for it is then that the patient is presently seized with violent pains, either in the abdomen, or in the limbs, or in both these parts at the same time. These pains disappear sometimes during many days, and reappear all at once. This circumstance has often been a source of fallacy as to cures and relapses, which have been attributed to causes foreign to the affection. The abdominal pains often increase on pressure, above all in the epigastric region; sometimes there is green coloured vomiting: in this last case there is often a fulness and strength in the pulse,—burning heat in the skin,—with difficulty of breathing; but these symptoms are not constant;—they are fugitive, and seldom continue.

At other times, and this is the most serious case, the patient falls down at once without sense; he becomes delirious,—he is agitated with convulsions, which, in the greatest number of cases, nearly resemble epilepsy. In others, the delirium is furious or mild, and the patient passes through all the periods of the affection called nervous or *ataxic*.

The patient dies at the end of one or several attacks, or he recovers his reason quickly, although his convalescence is generally tedious and painful, and above all disposed to relapses. There frequently remains paralysis or tremors.

Such is the career which has appeared to us the most common in the different states of this disorder; the seat of which is evidently at the same instant both in the encephalic and abdominal organs. Thus, the symptoms which announce an alteration of the respective parts are, for the brain, weakness,—a feeling of dulness, or of weight,—numbness, cramps, tremors, convulsions, or paralysis of the limbs, anxiety, uneasiness, watchfulness, embarrassment in the ideas and movements, delirium or stupor, and even epilepsy; and for the abdomen, constipation, colic, pain upon pressure, abdominal tension, hiccups, and vomiting; whilst, in the midst of these abdominal and encephalic disorders, the thoracic organs remain healthy.

However, all these symptoms rarely manifest themselves at the same time in the same individual; but they sometimes succeed each other in the course of the disorder. Most frequently there exists but a very small number of them: thus, some patients only feel pain in their limbs, or cramps; others, weight and numbness only, or tremblings; others, constipation, or pain in the abdomen; others, in short, however seriously affected, complain only of uneasiness and anxiety or weakness.

Those who have placed the seat of this disorder exclusively in the abdomen, have maintained, that the encephalic alterations were symptomatic, or the effect of abdominal alterations; but we are convinced that, in the greatest number of cases, the

contrary takes place,—that the most simple metallic disease,—that which manifests itself even for the first time, most frequently commences by cerebral phenomena, easy for those to comprehend, who observe them without prepossession.

At the autopsy of eleven individuals, who died in consequence of this affection, we have found: 1st, The meningeal vessels strongly injected, and infiltrated partially or totally; 2d, The cerebral and spinal substance, more especially the cineritious matter, presenting very thin points, much injected or softened, more frequently in the superficial grey stratum than in the deep parts, as in the corpora striata, and the optic thalami; the white substance is more rarely softened; 3d, Some serous or sanguineous effusions between the encephalic membranes, and in the cerebral ventricles; 4th, Sanguineous injection, sometimes red, sometimes of a deep colour, and even livid, of many parts of the intestinal canal, or of the stomach; 5th, Frequently very extensive wastings of the tunics of this canal; but contractions of them, and accumulations of indurated fecal matter, are rare. As for other appearances, we have constantly found the heart and the lungs in a healthy state.

There results from all we have stated, 1st, That authors have mistaken the extent of the seat, and the nature of the disease caused by metals, by too exclusively directing their attention to the colic; a symptom which does not exist in every case, since, out of 275 individuals, we have seen it completely wanting in 92; 2d, That they have gratuitously admitted that the cerebral symptoms are consecutive or complications of the disease, while, on the contrary, they exist in every case, the disease being ushered in more frequently by these last; 3d, That, when the disease has arrived at a very great degree of intensity, it is characterised as much by symptoms which announce the alteration of the encephalic organs, as by those which announce the lesion of the abdominal organs; 4th, That, in the autopsy of individuals dead in consequence of this disease, alterations are always found in the cerebrum or parts depending upon it, and in the abdominal organs; and that thus the disease caused by metals has its seat in the brain, and in the abdomen at the same time;—that certain circumstances belonging to causes still unknown, sometimes cause the abdominal phenomena to predominate; and, at other times, those which are dependent on the encephalic organs.

From these data may be explained the cause why metallic affections, even though they should be very intense, yield to powerful stimulants of the intestinal canal: besides changing the mode of irritation of this diseased part, they produce, at the same time, an effective derivation from the brain.

II. PRACTICE OF SURGERY.

ART. IX.—*Case of a Wounded Nerve, followed by severe consequences, and cured by removing the wounded portion of the Nerve.* By GEORGE BELL, Esq. F. R. S. E., Fellow of the Royal Colleges of Surgeons, Edinburgh and London, Surgeon Extraordinary to the King, and Surgeon in Ordinary to His Majesty's Household for Scotland.

THE affections and injuries of the Nerves, including contusions, wounds, and the different varieties of tic douloureux, which fall, almost exclusively, under the care of the surgeon, have always excited much interest and anxiety, both in the patient and practitioner, not only in consequence of the extreme pain usually accompanying them, and the uncertainty of the influence of the remedies employed, but of the long continuance of the symptoms, the ill health, and sometimes the fatal consequences resulting from them.

As the older anatomists were unacquainted with the minute anatomy of the nervous system, we need not be surprised that the contemporary surgeons should be ignorant of its pathology; and, therefore, that their treatment of its chirurgical diseases should be conducted upon almost empirical principles. Thus we find a number of detached cases, dispersed in various books of general surgery, as well as in the Ephemerides and other periodical publications on the Continent, and in this country, treated as diseases or injuries of the nerves, where, in fact, the diseases ought, in many instances, to have been sought for in the veins, the aponeurotic expansion, or in an erysipelatous affection of some other tissue. But the indefatigable exertions, and accurate investigations of Wrisberg, Monro, Reil, and other great anatomists of the last century, followed, more lately, by the researches of Bichat, Sir Everard Home, Scarpa, Mr Charles Bell, and others, have cleared away many of the difficulties connected with the anatomy, and rendered the pathology of the tissues so intelligible, that we may not despair of seeing the treatment of chirurgical diseases, and affections of the nerves, reduced to as great a degree of simplicity, and to as fixed principles, as many others coming under the care of the surgeon. More especially, I cannot help anticipating great improvements, not only in the chirurgical but in the medical treatment of nervous affections, from the labours of Mr Charles Bell, when his exposition of the nervous system comes to be generally read and understood *.

* See Exposition of the Nervous System, by Charles Bell. London, 1824.

In the mean while, I am persuaded that the faithful narrative of unequivocal cases, may, in this, as in other subjects, induce practitioners to bring forward those of the same kind they have met with, and thus form a body of detached information, which may be classed, when our knowledge is more matured. With this view I am induced to offer the history of a case, where, I have every reason to believe, a nerve was punctured in the operation of bleeding, where the symptoms soon became extremely urgent and interesting, and where a cure was effected by a complete division and removal of the parts surrounding the wound.

On the 7th July 1802, I was desired by Dr James Hamilton, Professor of Midwifery in this University, to visit, with him, a young woman, who had been bled ten days before in the median cephalic vein of the right arm.

When I saw her, the tendon of the biceps was much contracted, and the fore-arm bent to an acute angle with the arm. The fingers also were firmly clenched, and she could neither allow them or the arm to be extended, without suffering the most excruciating pain. On examining the arm, no swelling of it was perceptible; and the wound of the vein was completely healed; but when this spot was even gently pressed, she complained of great uneasiness. The pain was not confined, however, to the neighbourhood of the wound, but extended down the fore-arm, to the very tips of the fingers, and stretched upwards along the inside of the arm to the axilla, thence to the clavicle, pectoral muscle, and even the short ribs.

The pain was, to a certain extent, constant, but occasionally considerable exacerbations were experienced; and at these times she was seized with startings, tremors, and subsultus tendinum, and other nervous symptoms. The pulse was 110,—she was hot and restless,—her tongue dry and parched,—she had a general uneasiness over her whole body; in short, all the symptoms of fever. As she was of an irritable habit, and easily affected by slight impressions, and every internal medicine and external application that Dr Hamilton could think of had been used, without producing any sensible good effect before I saw her, there was much reason to apprehend that tetanus or locked jaw would soon supervene, unless relief were obtained from the division of the nerve which we had no doubt had been wounded.

As I was obliged to perform the operation by candle light, when it would be extremely difficult, if not impossible, to dissect from the neighbouring parts so minute a nerve as that which probably was wounded, I determined to remove a considerable portion of the vein which had been opened, so that I might be certain of including the injured nerve within the two incisions.

I was induced to adopt this plan from another consideration,

as it occurred to me that there was little chance of my being able to divide the nerve precisely at the place where it had been punctured; and if it was only divided in one place, either above or below the puncture, or even both above and below, the numerous anastomoses which connected it with other cutaneous nerves might prevent the success of the operation.

With this view, and with the concurrence of my friends Dr Barclay, who attended in consultation, and Dr Hamilton, an incision about three inches in length was made through the skin along the course of the vein, commencing an inch and a-half above, and terminating at the same distance below the wound which had been made by the lancet. The vein being laid bare, and separated from the tendinous aponeurosis, two ligatures were thrown round it, at an inch and a half from each other, and equidistant from the wound of the vein. The ligatures were then tightened, and the intermediate portion of vein divided as close to them as possible, and removed.

When the ligature was tightened on the upper part of the vein, she complained of considerable uneasiness, much greater than that which she felt on tightening the ligature on the lower part.

On dividing the vein, the cut ends retracted to a considerable distance from each other, and the pain which she felt previous to the operation immediately disappeared. She moved her fingers with the greatest freedom, extended and bent her arm, and performed all the motions of the wrist and elbow joints with perfect facility. The pain of the side, of the axilla, and all those symptoms which rendered the operation necessary, seemed to be removed; and she now complained of no farther uneasiness than that which a wound of equal extent in any other part of the body would have occasioned.

The sides of the wound were drawn together, and retained in contact by slips of adhesive plaster; a pledget, compress and bandage, completed the dressings. She was placed in bed with her arm extended on a pillow, in such a manner that the flexors of the fore-arm were completely relaxed.

On the following morning (8th) I found she had slept well, by the aid of an opiate; the sleep had not been disturbed by any startings, tremors, or other nervous sensations, with which she had been affected previous to the operation. She lay as easy, and was as comfortable, as could be expected, considering the constrained posture in which she was placed. During the night, however, her fingers were again contracted, probably from the superior power of, or irritation applied to, the flexor muscles, or possibly from the irritation excited by the ligatures of the vein; but although she could not extend them at pleasure with ease,

she could permit them to be moved in every direction, without increase of pain.

On the 9th, she complained of slight uneasiness in the fingers and forearm, but these sensations seem to have been occasioned by her having passed a restless night, and having been obstinately costive. A dose of compound powder of jalap was therefore given, which operated copiously in the course of the day, and an emollient poultice was applied to the wound.

10*th*.—She slept well during the night,—has no symptoms of fever,—the pain of the arm relieved, and the wound has an healing appearance.

12*th*.—Remains easy and free from fever,—ligatures were removed this forenoon, and the pain which the upper one seemed to have occasioned is gone. The wound is now dressed with adhesive plasters. From this time she continued quite well as to her general health, complaining occasionally of a sense of stiffness or numbness in her arm, though not to a greater extent than was reasonably to be referred to the wound made in the operation. The wound was healed on the 1st August.

In this case, I have no doubt that at least a permanent contraction of the elbow-joint, if not an attack of tetanus, was prevented, by the operation having been performed so soon after the infliction of the injury; and I would be disposed to hold it out as a case affording encouragement not to delay removing a portion of a partially wounded nerve, producing symptoms similar to those above detailed, where the nerve is accessible to the knife.

But although an early operation is, in all cases advisable; yet, if it has been neglected, or unavoidably postponed, the experiment ought to be made, even at a very protracted period from the accident, and when symptoms, which, when idiopathic, are generally considered incurable, have supervened. The propriety of this is exemplified by the following case.

A young woman, 16 years of age, when engaged in her domestic duties, cut herself with a knife, about three fingers' breadth above the wrist, wounding both the artery and nerve. The arterial blood was soon stemmed, the wound healed; and there remained only a little pustule, resembling a bilberry. Some few months afterwards she became affected with fainting fits, and applied to Volchamer for advice. He inquired minutely into the history of her complaints, and suspected an injury on the head; but on being shewn her arm, to the injury on which, and the loss of blood, she attributed her complaints, he, taking the pustule for an incipient aneurism, directed a surgeon to apply caustic, which was done so effectually that a large eschar separated; the wound was kept open as an issue for six months, and the young woman had no return of fainting fits.

Volchamer observes, that unless you cut out, or burn out, a wounded nerve, convulsions are very likely to take place *.

A case of the same description, but with a different result, has been kindly pointed out to me by Dr Milligan, who was a witness to the progress of the symptoms, while the lady was in this country, and has repeatedly heard of her since her return to Ireland, where she still resides.

This lady, at the age of 22, was bled on the 7th June 1819, in the median basilic vein of the left arm, for a stitch in the left side. She immediately complained of pain in the wound; went to bed three hours afterwards, and soon experienced extreme uneasiness in the left shoulder. At three in the morning she was attacked suddenly with spasms of the extensors of the hands and nerves; great anxiety, restlessness; pain at the scrobiculus cordis, increasing for several hours, when the muscles of the neck and back became affected, and the body bent backwards, as in opisthotonos; the muscles of the upper and lower extremities, and the pectorals acting in the most violent manner. These spasms continued for six minutes, and then went off. She took large doses of laudanum from the commencement; 580 drops being given within the first twenty-four hours without relief, the spasms returning frequently during the day and night. These continued for a very long period to return incessantly; so that she took 44,000 drops of laudanum, in the space of two months; and she is, to this day, annoyed by frequent renewals of the disease, whenever she is agitated by any vexatious or unforeseen occurrence.

In this case, if a portion of the vein had been removed within a moderate period after the wound was inflicted, she might have been relieved at least of a part of her sufferings. And even at a more distant period, as in the case related of Volchamer's, I would not despair, but would give the patient a chance for being cured, unless some important contra-indication should present itself. This leads me to detail briefly the outlines of another case of wounded nerve, which occurred to me early in practice, and where the patient recovered from a long continued and highly excruciating disease.

In the month of June 1805, a lady, about twenty-six years of age, the wife of a surgeon in Lincolnshire, applied to me, when suffering severely under symptoms of violent nervous irritation, apparently connected with a wound which she had received two years before, when cutting a loaf of bread; the knife having slipped and divided the artery, and probably injured

* See Miscellan. Curios, Decur. II. Annus V. p. 321. Obs. 155. sub titulo Nervi læsio Epilepsiæ orientis causa, per cauterium ablata.

the nerve of the thumb, on the radial side of it, half way between the first and second joints. The pain was excruciating at the time, but the wound healed kindly; yet the pain continued, and was accompanied by startings, twitchings of the flexors, bending of the thumb, and great general irritability. Various opiates, without large doses of which she had never slept since the reception of the injury, and every expedient that could be thought of, were employed by her husband, and the medical gentlemen who attended her; and on two different occasions, at a considerable intervening interval, an incision was made through the soft parts to the bone in the neighbourhood of the wound, but with slight and only temporary relief. When she came to Edinburgh, her general health had suffered much, from the long continuance of the painful spasmodic symptoms; and now the pain was sometimes so exquisite, and her mind had become so irritable, that I dreaded mental derangement would ensue. Before removing the thumb at the second joint, I requested Dr Monro *secundus*, and Mr Russell, to see her. Mercury was proposed, and tried; but the symptoms increased, and we were glad to lay it aside. When the mercury seemed to have left the system, the thumb was removed; the twitchings and painful contractions were soon relieved; her mind became less irritable, and she returned home in five or six weeks, restored to perfect health.

I consider the cases which I have just briefly detailed, as well marked examples of nervous or tetanic affections produced by a partial division or injury of a nerve. I am aware, indeed, that the wound or prick of the nerve was not demonstrated by dissection, and made visible to the eye; and it must be obvious to every practical surgeon, that such demonstration would in almost every instance be impracticable, both from the minuteness of the object, the perpetual flow of blood, and the tedious dissection in the living body;—so difficult, indeed, would such demonstration prove, that I doubt whether it has ever been accomplished in more than one case yet on record. But these cases, and some others which have been recorded, afford sufficient data for distinguishing wounds of the nerves from those cases of inflamed veins, so well described by Mr John Hunter*, and from the inflammation of the surrounding cellular membrane described by Dr Duncan †, and for establishing, as a safe rule of practice, the division or the destruction of the affected portion of the

* See Observations on the Inflammation of the Internal Coats of Veins, by J. Hunter, Esq. in the Transactions of a Society for the Improvement of Medical and Chirurgical Knowledge, vol. i. p. 18.

† See Dr Duncan's papers in the first volume of Medico-Chirurgical Transactions of Edinburgh.

nerve, if within the reach of the knife or cautery, as soon as the nature of the injury is ascertained, if possible, within a few days;—yet not to be deterred by the lapse of any length of time from the reception of the injury, provided no constitutional disease shall contra-indicate an operation.

I will only farther add, that the probability of success in such cases is infinitely greater than in those where the nerve is divided in tic douloureux; for we do not yet know whether the cause of this last disease resides in the *extremity* of the apparently affected nerve, or at some spot between the extremity and its *origin* in the sensorium. In the former case, we are quite certain of removing the affected portion of nerve; but in tic douloureux we can never be sure of being able to reach the part that is diseased until the success of the operation proves that we have done so.

ART. IX.—*On Aneurism.* By ROBERT ALLAN, Esq. F.R.S.E. Surgeon to the Royal Infirmary, and Lecturer on Surgery in Edinburgh. In a Letter to one of the Editors.—(Continued from p. 108.)

CASE IV.—*Popliteal Aneurism.*

JAMES FERGUSON, aged 30, a sailor, was admitted into the Royal Infirmary of Edinburgh, on the 23d of August 1825. There was situate in the left ham an elastic circumscribed tumour, which was so large as not only to fill up, but to project beyond the space defined by the hamstrings, and which afforded to the touch a distinct thrilling sensation. The integuments above the tumour were tense, but not red or painful. The pulsation of the femoral artery was strong, but that of the anterior and posterior tibial arteries indistinct. The motions of the knee-joint were much impaired, and he kept his leg continually in a semi-bent position. He experienced, at times, in the leg, severe shooting pains, and there was occasional œdema and a tingling sensation in the foot. Some of the lymphatic glands under the jaw were enlarged; but his general health was, in every respect, good.

Ferguson reported, that he had just returned from North America, where the affection of his limb commenced on the 1st of July, about eight weeks before his admission into the hospital. The swelling and pain of the limb were the first symptoms observed. After ten days continuance they abated, and he then perceived a tumour in the ham, which pulsated very strongly, and was nearly as large as when he came under my care; but

the beating had gradually become less. He was not aware of any cause which he could assign as the origin of his disease.

On the 26th of August, three days after Ferguson's admission into the hospital, I placed a ligature on the femoral artery. After having gently bent the limb, and raised the knee, so as to define the sartorius muscle, I commenced an incision about an inch above the middle of the thigh, carrying it in an oblique direction upwards, to the extent of three inches in the course of the inner edge of the muscle. This incision passed through the integuments and fascia lata, and exposed the sartorius; and, when the finger was drawn along, under its inner edge, the artery was felt beating. The muscle was held aside by my colleague Dr Hunter; the cellular substance was dissected; and the sheath opened to the extent of one-fourth of an inch. This was done about the center of the external incision, where the artery begins to be covered by the muscle. A ligature, consisting of three threads, was now easily passed, by means of the blunt aneurismal needle, from the inner side, and tied by pulling with a moderate degree of firmness; upon which the tension and pulsation of the tumour immediately ceased; but the patient did not complain of coldness or numbness of the limb till an hour after. There was no bleeding of any consequence; and he bore the operation without complaint. The edges of the wound were brought together, and retained, by means of adhesive plaster, and the uniting bandage; compresses were placed on the tumour in the ham, and a flannel roller applied from the toes upwards to the top of the thigh. The operation was performed at twelve o'clock; and, at one, he complained much of pain in the wound and in the foot, which was a little colder than the other. He was, in other respects, well.

At eight o'clock in the evening, the heat of the sound limb was $95\frac{1}{2}^{\circ}$, while that of the aneurismal one was 91°. He felt little pain, but complained of some numbness and a tingling sensation in the leg and foot. A bottle of hot water was applied to the foot, and he was ordered an anodyne draught, if necessary.

At seven o'clock on the morning of the 27th, it was reported that he had taken the draught, and had slept well; that he did not complain of any pain, and had less numbness and tingling sensation in the foot and toes; that no pulsation could be felt in the tumour, nor in the anterior or posterior tibial arteries; that his pulse was natural; and that the heat of the sound limb was 94°, while that of the aneurismal one was $88\frac{1}{2}^{\circ}$. At twelve o'clock he remained free from pain in the limb; his pulse was 96, full and strong; he complained of pain of loins, but he had no headach or thirst; tongue clean; no dejection; the heat of both limbs 92°. A cathartic enema was ordered to be imme-

diately given. At eight o'clock in the evening he complained much of pain in the leg; but there was neither swelling nor redness round the wound; pulse 80, full and strong; heat of the sound limb 95°; that of the aneurismal one 93°.

On the 28th, it was found that he had slept indifferently during the night; that he complained of an increase of pain in his leg, but of none in the wound; pulse 100, and soft; no headach, or pain of loins; no thirst, skin cool and moist; one dejection, and the heat of both limbs 90½°. An ounce of castor oil was ordered to be given immediately.

29th. Three dejections had been procured by the medicine, and he had slept well without a draught; pulse 90, and of natural strength; tongue clean; no thirst, and the temperature of both limbs was 91°. This day the wound was dressed, the edges of which were found to have adhered, and there was no inflammation or tumefaction. In the evening, he complained of pain in the affected limb, and his pulse was 106, full and bounding, attended with heat of surface; no dejection. Fourteen ounces of blood were immediately taken from the arm, and two aloetic pills were ordered to be given in the morning.

30th. He had slept well, and experienced no pain; his pulse was 104, but less full and bounding than on the preceding day; skin moist; tongue clean; no dejection. A cathartic enema was ordered to be administered in the evening.

From this time till the 4th of September, there was little febrile action; and the only thing worthy of remark was, that the temperature of the aneurismal limb continued generally about two degrees below that of the sound one. On that day, however, he felt considerable pain extending up the leg towards the wound, with some starting; pulse 100, and sharp; belly costive. The wound was observed to be surrounded by a blush of inflammation, but the adhesion of its edges was perfect; he complained of pain in the groin, and the inguinal glands were observed to be enlarged; cloths dipped in a saturnine solution were ordered to be applied to the groin and wound; fourteen ounces of blood to be taken from the arm, and two drachms of the compound powder of jalap to be given immediately.

September 5th. The blood which was abstracted on the preceding day was very sizy; there was less redness round the wound, and the inguinal glands were not so painful on pressure; pulse 100, full, and rather strong; his bowels had been moved by the medicine; the aneurismal tumour was now much reduced in size. The saturnine solution was ordered to be continued, the cathartic powder to be repeated, and a saline mixture with antimonial wine, to be occasionally given.

On the 6th, the upper part of the thigh was observed to be involved in erysipelas, which gradually extended over the whole

haunch and thigh, and did not disappear till the 13th. During the continuance of the erysipelas there was much constitutional irritation. The treatment consisted chiefly in keeping the bowels open by means of the infusion of senna, with a little calomel occasionally.

Ferguson now began to complain of pain about the knee-joint, which was severe on pressure. The pain was attended with a burning heat, stretching down the calf of the leg, and there was some swelling, but no redness.

On the 18th, the ligature came away; the discharge of pus continued trifling for a few days, when the wound cicatrized, but the pain in the knee continued to increase.

On the 20th, there was considerable fever, and it was reported that, during the night, there had been much aberration of mind. He now expressed a wish to return to his father's house, in Leith. As there was good accommodation there, his wish was complied with; and I committed him to the care of my friend Mr Charles Cheyne, who paid him every attention, and with whom I occasionally visited him. At the time Ferguson left the hospital, the aneurismal tumour was about the size of a duck's egg.

The pain of the knee continued to increase, attended with swelling, and great heat; the febrile action was high, the pulse being never below 120. Fomentations and poultices were applied to the knee, and the constitutional treatment consisted in the exhibition of diaphoretic and laxative medicines.

On the 27th of September the aneurismal tumour felt very soft, and there was a distinct sense of fluctuation round the knee-joint. I made two small incisions where the fluctuation was most distinct, and the swelling most prominent, viz. one a little above the patella, and the other about two inches below the knee on its inner side. From the upper opening six or seven ounces of bloody matter were discharged, but from the lower one not above an ounce issued. Into each opening a piece of oiled lint was inserted, and the poultices were continued. On the two following days, upon the removal of the lint, several ounces of pus were discharged; the discharge was increased when the tumour in the ham was pressed on. The joint was not only surrounded with pus, but matter seemed to be contained within the capsule and the irritative fever continued great. Under these circumstances, it was judged advisable to remove the limb. On the 30th I performed the operation. I removed the limb about three inches below the place where the ligature was put round the femoral artery; eight vessels were secured, the flaps were brought together, and the stump dressed in the usual manner.

It is worthy of remark, that after the limb was removed, the

femoral artery was observed open; a ligature was therefore applied; but, when the tournequet was taken off, no pulsation could be perceived at the ligature.

For three days after the operation Ferguson had less fever, and felt better; but after this time the bowels became loose, the stump looked ill, he perspired profusely during the night, the diarrhœa could with difficulty be repressed, the constitutional irritation was great, and he died on the 27th of October, eight days after the removal of the limb.

Remarks.—The remarks suggested by Ferguson's case, may be referred, 1st, to the operation and its effects; 2dly, to the state of the limb after its removal; and, 3dly, to the condition of the artery in the stump.

1st, With regard to the operation and its effects, it may be observed, that the ligature was placed on the artery about two inches and a half above the middle of the thigh, which was at a higher point than in the operations on either Pringle or Tod. The artery at this place is more superficial, consequently less dissection is required to expose it, while it is sufficiently remote from the origin of the profunda to insure the success of the operation. In reading the case, it will be perceived that the ligature did not come away till the 24th day, which is much later than in the generality of operations for aneurism. When a ligature is placed on an artery, the time at which the ligature will be discharged, must depend in a great measure on the state of the constitution, but its late separation in the present case is partly to be attributed to the ligature not being drawn very tight on the artery.

Although this patient ultimately died, yet the cessation of the pulsation in the tumour, the closure of the artery, the separation of the ligature without hemorrhage, and the healing of the wound, shew that the operation was successful, as far as related to its object, the cure of the aneurism.

2d, With respect to the limb, after it was removed, the aneurismal tumour, the knee-joint, and the parts in its immediate vicinity, were examined. The popliteal vein and nerve were seen running over the external or posterior part of the tumor, the vein was found to be obliterated, and immediately before it came in contact with the lower part of the tumour, it was filled with a clot of blood. The tumour lay fairly in the hollow behind the condyles of the os femoris, and the form of the popliteal artery was distinctly seen running along its outer surface. Upon opening the tumour, it was found filled with loose coagulated blood, and the artery was seen entering its upper and passing out at its lower part. The points at which the artery entered and passed out, were situate towards the outer side of the

sac and were about two inches apart; both of the openings within it had smooth, rounded edges; the upper one was of the size of a goose-quill, which was the diameter of the artery up to the place of amputation; and the lower one that of a crow-quill, which was also the size of the corresponding portion of the vessel, down to the origin of the anterior tibial artery. I may remark, that no laceration of the internal coats of the artery could be perceived, but it looked as if all the coats on the side next the knee-joint had been dilated. Upon farther examination, three distinct abscesses were discovered, all of which were deep-seated, and communicated with each other. The largest abscess was situated betwixt the aneurismal sac and the inner hamstrings, and was bounded before by the bone and capsule of the knee-joint. Betwixt it and the aneurismal tumour there were two openings, each of which would admit the point of the little finger. These openings were at the inner side of the sac about its middle, the one a little anterior to the other; and coagulated blood was seen projecting from one of them into the cyst of the abscess. This abscess also communicated with the joint at its inner side, close by the insertion of the semimembranosus. Another abscess, about half the size of this, occupied the situation of the popliteus muscle, which, with the exception of its tendon in connection with the external condyle in the thigh-bone, was entirely absorbed. This abscess lay between the heads of the tibia and fibula and the gastrocnemius externus, covered by the aponeurosis of the leg. It opened into the joint at its outer side and betwixt the tendons of the semimembranosus and the inner head of the gastrocnemius externus, into the one we have already described. The situation of the third abscess was on the fore-part of the femur, immediately above the joint, and exterior to the capsule, and it communicated laterally with both the other abscesses; so that the knee-joint was completely surrounded with pus, except at the part corresponding to the patella, the anterior part of the heads of the tibia and fibula, and the site of the aneurismal tumour. Independently of this circumstance, matter was contained in the cavity of the joint.

3d, The remaining point of investigation related to the condition of the artery in the stump. When the vessel was removed from the thigh, it was ascertained that it had been tied exactly three inches below the origin of the profunda. At that point where the ligature had been applied, it looked as if divided transversely with a knife. The sheath of the artery, and the cellular substance immediately in contact with it, was much thickened to the extent of an inch and a half above the ligature; and this was also the condition of these parts all below the ligature to the face of the stump, including a space of two inches. From

an inch above the ligature to the face of the stump, the cavity of the artery was not obliterated, but much contracted, and filled with a clot.

The dissection of this case shews, that the matter was not originally formed in the knee-joint, and that the death of the patient was not to be imputed to the suppuration of the sac, but to distinct abscesses, which, by inducing ulcerative absorption had formed a communication both with the joint and the aneurismal sac.

(To be continued.)

ART. X.—*Case of Partial Spontaneous Fracture of the Femur in a Child.* By BENJAMIN BELL, M. M. C. S. L. Fellow of the Royal Colleges of Surgeons, Edinburgh and London, Surgeon to the Asylum for the Blind, and Royal Public Dispensary, &c. In a Letter to one of the Editors.

MY DEAR SIR,

SHOULD you deem the following outline of a very interesting case of partial fracture of the femur, worthy of a place in your valuable Journal, pray insert it. The thigh-bone of the child is in my possession, and I need not add that it will give me great pleasure to shew it to you, or to any other member of the profession who has directed his attention to this important branch of pathology.

I remain, my Dear Sir, yours faithfully,

BENJ. BELL.

26. ST ANDREW SQUARE,
March 13. 1826.

J. Douglas, a child two years and six weeks old, of a rickety and otherwise unhealthy habit of body, was brought to me for advice, about twelve months ago. From the symptoms I concluded that the patient laboured under marasmus, and therefore adopted that line of practice, laid down by Dr James Hamilton *senior*, in his admirable work on Purgative Medicines. The child got gradually better, and I was in hopes that in time a perfect cure would have been effected.

In this expectation I was disappointed; for, two months ago, the thigh of the right side was observed to be much swollen, and the motions of the hip and knee joint affected. My assistant Mr Charles Ure, who saw the case at the time, imagined that a fracture had taken place near the middle of the femur. An obscure sense of *flexibility* could certainly be perceived in

that part of the bone, but the other symptoms did not appear to warrant me in concluding that fracture had actually occurred. I rather imagined that some lurking inflammation of the peritoneum or bone existed, of which the swelling of the soft parts was in a great measure symptomatic. Under the employment of fomentations, stimulating embrocations, &c. and the occasional exhibition of cathartic medicines, the tumour subsided to a certain extent; but about three weeks after the disease was first observed the child died suddenly.

No morbid appearance which could account for so sudden a termination of life, could be observed in any of the four great cavities. There was merely a slight enlargement of the mesenteric glands, unattended by any inflammation or ulceration of the mucous lining of the small intestines.

The right femur, however, presented some interesting pathological phenomena. This part of the dissection was conducted with great care, from a wish to avoid every source of fallacy.

A longitudinal incision was made on the fore part of the thigh, extending from the groin down to the inner side of the patella. The skin and muscles were then carefully dissected from the bone, and the orbicular ligament, and those of the knee joint cut asunder.

Having divided all the attachments of the femur, the bone was removed, and minutely examined. It had the anterior rickety curvature. The periosteum was entire, except in the fore part of the bone, near its middle, (*Vide* Plate V.) A, where a small carious spot, about the size of a split pea, was perceptible.

I now made a longitudinal section of the bone, by means of a sharp, thin-bladed knife, and discovered a fissure (B) extending from the carious spot obliquely downwards, through the bone, for more than two-thirds of its diameter. The bone itself contained but a very small proportion of earthy matter; and the medullary cavity immediately above and below the fissure (C C) was filled up with a substance resembling in appearance organisable lymph. The medullary membrane, or internal periosteum, in general, was extremely vascular; and I do not recollect having seen any specimen which afforded a better illustration of the peculiar structure and distribution of the circular and longitudinal (D) lamellæ in ricketty bones, so well described in the Medico-Chirurgical Transactions of London (vol. vii. p. 323,) by my excellent and respected friend, Mr Edward Stanley, surgeon to St. Bartholomew's Hospital.

The foregoing case forms a good illustration of that obscure class of diseases to which the bones are occasionally liable. So far as its nurse or attendants were aware, the child had not met with any accident; and, indeed, for more than a fortnight previous to the period when the affection of the thigh was first

observed, it had been confined to bed. It does not appear also, from what has been already observed, that the bones were in that brittle state which we frequently find in old and adult subjects, and sometimes even in infancy; for almost all the bones of the extremities were found, after death, to be flexible; and to contain a very small quantity of earthy matter in their composition.

I should be inclined to imagine, and I offer my opinion with diffidence, that the carious spot on the anterior surface of the femur had exercised some influence in modifying the constitution of the bone; and that the local irritation attending this morbid condition of the osseous tissue, might have had the effect of inducing irregular, and, perhaps, spastic contractions of the flexor muscles, so violent as to occasion partial fracture.

III. MIDWIFERY.

ART. XI.—*Case of Emansio Mensium from interception of the Vagina by a preternatural Membrane.* By WILLIAM CAMPBELL, M. D. Fellow of the Royal College of Surgeons, and Lecturer on Midwifery, &c. &c. &c. Edinburgh.

ON Sunday, 18th January 1824, I was particularly requested to visit Elizabeth Simpson, a strong, healthy, young girl of 16 years of age, residing in Thistle Street. She complained of severe pain along the course of the sacrum; and in the hypogastric, and both iliac regions. There was no headach, general heat, or acceleration of pulse. Some days before I was called, she had frequent liquid alvine dejections; but at this visit the bowels were constipated. She never exhibited any evidences of menstruation. ℞ Olei ricini et aq. menth. pip. utriusque unciam; fiat haustus, statim sumendus. Fotus calidi imo abdominis cursu noctis applicentur.—*Vespere.* Pains unabated, medicine has not been productive of any operation. Enema domesticum ad ℥xxiv, tertia quaque hora injicietur, donec alvus cedet.—19th, 10 A. M. Pains were very severe in the course of the night, but somewhat easier this morning; and the aperients operated freely.—2 P. M. I received an urgent message to visit this patient without delay; her sufferings were most excruciating, and her condition imperiously called for relief. At this visit the abdomen was freely examined, when the hypogastric region was discovered to be tense, hot, and tender upon pressure.

There was no circumscribed tumour to be felt. The mammæ were neither painful nor particularly enlarged; nor were the papillæ encircled by an areola. On examining the state of the vagina, the canal was ascertained to be completely intercepted, at the distance of about an inch from its pubic extremity. When the index was insinuated into the passage this septum felt strong, distended, and convex towards the *pubis*, forming something precisely similar to the membranes of the ovum, when they begin to protrude through a contracted os uteri, as in the commencement of a primary labour. The hymen, constituting a circular membrane, pervious in its centre, was to be felt about half an inch within the pudendum. Mr Lizars, Lecturer on Anatomy and Surgery, and Dr Sadler, my assistant, were present at this visit, when it was determined to puncture the preternatural septum, which Mr Lizars accomplished with a common lancet. The operation was immediately followed by the evacuation of about two pounds of viscid grumous fluid, of a dark purple colour, which afforded instant relief to the patient.

As the discharge continued for several days, we were of opinion that it would be unnecessary to introduce any thing into the vagina, to prevent reunion of the divided membrane. In this, however, we were disappointed; for, upon the 24th of February following, in consequence of the patient's uneasy feelings having all returned to a violent extent, the operation was repeated by Mr Lizars, in presence of Mr Joseph Cook, surgeon, Royal Navy, and myself, when about a pound of fluid, similar in appearance to the former, was discharged. After this second operation, a small wax candle was introduced, which succeeded in preserving a free communication; for the secretion manifested itself regularly afterwards, without interruption. This great accumulation, in so short a period after the first operation, may be ascribed to previous distension of the vagina from the menses, and the relaxation consequent on such distension.

From the month of April 1823 to the date of my first visit, this young woman was remarked to be harassed with languor, lassitude, and an unconquerable disinclination to exercise; she had impaired appetite, with perpetual thirst. In November of the same year, she was seized, for the first time, with severe pains in the back and in the hypogastric region, accompanied occasionally with alternate costiveness and diarrhœa, of two or three days duration. The pains supervened regularly every month, and were followed from the first by a progressive tension of the hypogastrium, and œdema of the lower extremities.

Cases of this description are to be found in every periodical work of the day; and the only circumstance worthy of notice, in the present instance is, the reunion of the preternatural septum. Does this unusual occurrence afford a solution of the

cause of contraction or total exclusion, in some of those cases, where, when the practitioner has been called to assist females during parturition, he has not only been unable to introduce the index, to ascertain the condition of the os uteri, but where the vagina has even been too contracted to admit a common pencil case? There are many cases recorded, which clearly prove, that occasionally these contractions may be viewed as varieties of original malformation; there are also examples related, which justify the notion, that they have resulted from violence having been done to the parts, and consequent adhesive inflammation, as occurred in the case I have related; and it is well known, that, among a certain race of people in the interior of Africa, especially the Eboe nation, females of rank are obliged, at an early period of life, to submit to an operation, by which the external parts are very nearly closed up, in order to protect them from improper connections *.

As an example of malconformation of the vagina, I can relate the particulars of a very singular case which was communicated to me in 1822, by Dr Hodges, now a practitioner of eminence in the island of Antigua in the West Indies.

"During Dr G.'s absence, I met with one of those unusual cases in midwifery, in which conception had taken place, although the vagina was so small as only to admit, with some difficulty, the female catheter. There were no nymphae, no appearance of clitoris, or urethra. The only parts visible were the passage already described, and the labiæ pudendi. This state of the parts was not discovered until many hours had elapsed after the commencement of parturition at the full time. At last an incision was made in the usual course of the vagina, of sufficient extent to admit the hand in a conical form, without difficulty. The passage was contracted to the extent of about two inches, beyond which it was of the usual capacity. The woman was much exhausted, uterine action ceased entirely; and after considerable delay, it was at last found necessary to use the perforator. The patient, however, had a rapid recovery, and shortly afterwards resumed her labours in the field."

It occurred long since to M. Louis, as may be inferred from the following quotation from his work, *De Dispositione Muliebrum*, that occlusion of the vagina might be occasioned by lesion of the parts. He says, "In illis atretis, ut in virginibus arctis, vis insanientis mariti obstacula superavit, quae ex cruenta et lacerata carne facile potuerunt renasci, uti cruentati digiti connascuntur." Irritation of the passage, inflammation and consequent occlusion, may be brought about by acrid discharges, as appears to have happened in a case related in the 7th Number of the American Journal of the Medical and Physical Sciences, by Dr Dewees of

* Medical and Physical Journal, London, No. 280. p. 528.

Philadelphia. In this instance, the patient, *a young lady*, menstruated regularly for some time; but the secretion ceased suddenly for about a year. The suppression was succeeded by symptoms of an alarming nature, such as delirium, and great mental disturbance. She was at first thought to be pregnant, owing to gradual enlargement of the abdomen; but this suspicion was soon afterwards exchanged for one less injurious to her character, in consequence of fluctuation having been discovered in the abdomen, when she was thought to be labouring under ascites. After the employment of some remedies, a serous discharge appeared *per vaginam*; and this was followed by a sudden evacuation of blood, which amounted to nearly three pounds. From this period the catamenia appeared regularly, and the patient had a perfect recovery.

IV. PHYSIOLOGY AND PATHOLOGY.

ART. XII.—*Observations on the Anatomy of a Human Fœtus, presenting several remarkable Congenital Deformities.* By Dr KNOX, F. R. S. E, Lecturer on Anatomy, Member of the Medico-Chirurgical Society, and of the Royal College of Surgeons.

IT has been very generally admitted by anatomists and physiologists, that the consideration of the congenital deformities, usually described in medical writings under the term *monsters*, is one of deep interest, as well to the practitioner as the philosophic anatomist, and that, in all probability, some decisive *corps de doctrine*, or some important physiological deductions, must be the result of well directed inquiries into the exact nature of those singular aberrations in Nature's productions. I cannot find, however, on consulting medical works, that any very important theory, fit to be deemed a fair induction from facts, has been proposed by any writer; but, on the contrary, there have appeared, with few exceptions, numerous hypotheses, of a highly fantastic nature, many of which scarce merit the least attention.

That this was the state of the question as to the causes of these lusus naturæ, known by the name of acephalous fœtuses, anencephalous fœtuses, &c. was, I presume, sufficiently demonstrated by Mr Lawrence, in a very excellent paper published by that gentleman, in the Transactions of the Medico-Chirurgical Society of London *. It is therein shewn, I think satis-

* Vol. v.

factorily, that, of the causes usually assigned as explanatory of the production of monsters, some are absolutely untenable, others ridiculous, and all, in some degree, unsatisfactory. But it is not my intention, in the present observations, to speculate on the theories which have more lately been brought forward by a very distinguished naturalist and philosophic anatomist, the Chevalier Geoffroy St Hilaire,—theories, defended by an energy and eloquence peculiar to himself, and which have already borne along with them half the anatomists of Europe. My object, at present, is to record, in this Journal of Medical Science, a case I deem peculiar, and worthy the attention of the profession; to put scientific men in possession of the anatomical details, in order that the anatomist, the naturalist, the physiologist, and the physico-theologist, may speculate on the mysterious causes of these singular effects, after whatever manner each may think fit.

Preliminary Remarks.

As it is probable that there are but few of the junior part of the profession, who have paid any, the least attention to the history, anatomy, and physiology of monsters, regarding the subject probably as altogether uninteresting, speculative, and not tending to any thing really useful (an opinion with which most anatomists not purely empirical, must entirely disagree), I shall, though very briefly, offer a few remarks on the progress of opinion relative to the probable causes of monsters; but this I shall perform with as much conciseness as possible, having in view a return to the same subject in the Number of this Journal to be published in October.

1. A deficiency of the brain and its osseous coverings, observed at birth, is a species of deformity by no means unfrequent; it constitutes the acephalous, or anencephalous fœtuses of authors. This defect in the cerebral development, has been known to extend to the *medulla spinalis*, and the portions of the spine completing the osseous case posteriorly. It was usual to consider the former cases as being occasioned by a hydrocephalous state, occurring in the fœtus whilst in the womb, occasioning the destruction of the cerebral matter; and this view was supported by the great Haller. I know of no physiological writer who, in the present day, would venture to defend this doctrine, nor even to say that the cause assigned is in the smallest degree probable.

2. The absence of certain organs has been observed to follow a deficiency in others, as the muscular system is proved to be defective when the nerves belonging to the part are wanting; but the mutual dependence of the organs in this way has not yet been

completely made out; and I shall endeavour afterwards to shew, that some erroneous conclusions have been drawn, which may require correction.

3. The imagination of the mother has been supposed to exercise a powerful influence over fœtal existence; and many instances are recorded, *of singular facts*, most of which, on strict inquiry, have turned out to be singular falsehoods.

4. The agency of supernatural beings has been occasionally resorted to, in order to explain the appearance of some outrageous looking monsters. Now, though I admit that mankind becomes daily more and more enlightened in some respects, in others it is just the reverse; so that this opinion must not be scoffed at, since there might be found many even in the profession, who may be inclined to maintain this opinion seriously. When this happens, I shall endeavour to refute it, in as serious a way as the subject demands.

5. Frightful objects presented to the mother, during pregnancy, or a fright occasioned by the sudden appearance of an animal, such as a hare, dog, cat, or other harmless creature, have been supposed causes sufficiently potent to give rise to a *lusus naturæ*, in the formation of the human fœtus; to produce a *headless* or *heartless* monster, with an organisation unable to maintain an independent existence. Mr Lawrence has, in the Essay already quoted *, triumphantly refuted this; but the doctrine has returned in a new and much more tangible form; I mean the theory which teaches that these monstrous human fœtuses always resemble one or other of the lower animals; and I will venture to affirm, that this theory, even if ultimately it should not prove successful, will be backed by half the anatomists of Europe. But although the doctrine does, in some measure, resemble one of those cast-off theories of philosophers, which the idle, illiterate, and unthinking vulgar, are ever ready to catch at, and adopt as their own; yet, in other respects, it differs most widely from them, and is, in its essence, profoundly philosophical. The new theory, so far as I understand it, may be considered as divided into two parts.—By the first it is endeavoured to be shewn, that by far the greater number of malformations of the human fœtus are dependent on, and occasioned by, adhesions of the placenta to the fœtus in an early state,—adhesions so extensive and unnatural, as to prevent the closing of the cavities of the thorax and abdomen, and cranium; sometimes occasioning hare-lip, division of the sternum, exposure of the surface of the urinary bladder, which becomes thereby a portion of the common integumentary surface, &c. This part of the doctrine is beautifully illustrated by the anatomy of the

* Medico-Chirurgical Transactions, vol. v. p. 205.

monster I am about to describe, and in such a way as to leave no sort of doubt whatever as to the absolute correctness of the views brought forward by my friend M. Geoffroy St Hilaire.

The second part of the theory is of a more doubtful character; more suspicious; more at variance with the feelings of English physiologists; and this is the part which, it is probable, will meet with the most decided opposition in this country. It assumes for granted, that there is a unity of structure throughout the whole animal kingdom, and that when nature departs from her regular or normal laws in the construction of any animal, as in the human fœtus, for example, her deviation from the usual co-ordination of organs is regulated, not capriciously, not by chance (there is no chance in the productions of the Creator), but agreeable to certain fixed laws of animal existence, agreeable to certain fixed types of organisation, from which she will not deviate.

If, for example, we examine the osteology of the head in one of these anencephalous subjects, we shall find that all the bones usually present in the human cranium are present in the monster, but in a rudimentary state *. Deviations, likewise, from the normal condition of the organs of generation, are supposed to bear the closest resemblance to the regular structure in some other animals; and, lastly, it is admitted, I think, by all anatomists †, that there is not an irregular distribution in the human bloodvessels, which may not be easily compared, and shewn to be identical, with a distribution of the same organs, which, in some of the lower animals, is of constant occurrence, and quite regular.

In the following history of a very peculiar congenital deformity, I do not pretend to follow up these analogies for the present; nor do I admit that they are to be received without scrupulous inquiry into their applicability to the human species. Neither do I admit, in this sweeping, unreserved manner, the absolute unity of organisation throughout the whole animal kingdom, but think it possible that there may be, at least, two great divisions. These various questions shall be considered in an early number of this Journal.

History of the deformed Fœtus.

Dr Barclay, in whose museum I observed the fœtus in question, and to whom I am indebted for this opportunity of examining so interesting a production, informs me, that its previous history is unknown to him.

Head.—This part of the fœtus, and all the organs contained

* St Hilaire, Beclard, Lallemand.

† Haller, Barclay, Tiedeman.

in or more immediately connected with it, as the brain (inferred from the size of the cranium), organs of sense, of mastication, &c. seem perfectly well formed. The whole length of the fœtus is about sixteen inches.

Thorax.—This division of the trunk seems, in like manner, equally well formed with the head, judging from external appearances; for I did not judge it necessary to open and examine it.

Abdomen.—The muscular parietes of the abdomen are wanting (Plate VI. Fig. 1. *a*), but the peritoneum *b* is entire. To this peritoneum is attached, by numerous short and strong membranous cords, a placenta *c* sufficiently large and natural, excepting that its lobules are separated more completely than usual, which may be the result of maceration in spirits *. The vessels forming the umbilical cord are present and distinct, but this cord is only a few inches in length, and does not differ in appearance or length from the membranous attachments spoken of.

In Plate VI. Fig. 1. the placenta is marked *c*. On raising the placenta a very remarkable distribution of the urinary and genital organs presents itself. There is first a large open cavity, Fig. 2. *a*, the surface of which is evidently integumentary. Towards the margin of this cavity we observe two small apertures *b*, ascertained to be the common opening of the ureters and vasa deferentia. Outside the cavity, and situated on the common integuments, is a papilla *d*, having some distant resemblance to, and occupying the situation of, the penis. An opening *e*, exists immediately below this, leading into the large cavity already described, sufficient to admit a common silver probe *f*. This great external cavity, which the Continental anatomist will, no doubt, declare to be analogous to the cloaca of a bird, and in which exists the openings of the urino-genital organs, leads directly, and by a very wide aperture, into another cavity *g*, which proved to be the termination of the intestinal canal, and may almost be viewed as the cœcum deprived of a portion of its parietes; for the stomach and small intestines are naturally enough formed, but the latter terminate in the mucuos cavity I speak of, and in such a way, that this cavity evidently occupies the situation of the cœcum. The irregular honeycomb-appearance of this second cavity, and the numerous orifices of smaller cavities, filled with mucous fluids, together with the termination of the small intestines, mark sufficiently its character.

The form of the liver Fig. 3. *a* is not quite natural, but the supra-renal glands are present and large; the left kidney Fig. 3. *b* (the only one noticed) seemed quite perfect, as well as the corresponding ureter.

The pelvis and lower extremities are turned quite round and

* I will not affirm this. There is an evident tendency in the human placenta to divide into lobules.

are deformed; and from the loins there depends a vast sac *f*, Fig. 4; on opening which there was observed only a fringed cellular-looking substance *g*, situated somewhat below a small aperture *h*, Fig. 4. leading apparently into the spinal canal.

Such is the brief history of this very singular production, to which I shall shortly return: it does not seem necessary, therefore, to enter into a more minute detail of the anatomical structure for the present; nor do I think that any thing very essential has been omitted. The engravings may be considered as giving a good representation of the monster; and their inspection, during a perusal of the description, will be found greatly to facilitate a right comprehension of the case.

It may possibly, and indeed it has already been objected to me, that cases of congenital deformity, which exhibit a combination of organs, ineffective in maintaining life in a separate and independent state, are but of very secondary importance, even though they occur in the human fœtus: but this objection scarcely, I think, holds good in the present instance of monstrosity; and I entertain, moreover, with many others I trust, a decided feeling against the doctrine attempted to be promulgated extensively, that anatomical inquiries, which do not immediately lead to the improvement of the surgical art, are useless. The establishment of such an opinion must, beyond all doubt, reduce anatomy to mere empiricism, and the operator to the level of the common mechanic.

ART. XIII.—*On the Influence of Civilization on the Progressive Increase of certain Diseases.* By ROBERT ABRAHAM, Surgeon, Carlisle.

[In giving insertion to this paper, we feel it incumbent upon us to say, that, upon some points, our own sentiments differ considerably from those of the Author. We publish it, because the subject is of general interest, and because it is discussed by a gentleman of talent.—ED.]

THE progressive increase of insanity, and of other affections dependent on hereditary morbific predisposition, is a subject of vast importance, and opens a wide field of interesting speculation; it has of late occupied no small portion of the attention of individuals both connected and unconnected with the profession, and, if established as a fact, must inevitably lead to conclusions of the greatest importance to the human race in general.

But this fact I am not so much disposed to rest on statistical or historical evidence, as on the inferences we must, I think, un-

avoidably make, from considering the effects which must arise from the accumulation of wealth, and the diffusion of the means of existence.

We all know, that, among uncivilized tribes, it is rare, very rare, to meet with any instances of chronic disease; and to find individuals suffering under mania, consumption, or scrofula. And why so? because, in the savage state, the difficulty of procuring the necessaries of life, and their precarious supply, rapidly cuts short the existence of those whose physical or moral defects, preclude their taking an equal share in the toils of the community; and, among many of these tribes, even parents abandon such of their offspring as are incapacitated by congenital deformity for labour or warfare.

But it is totally different in civilized life. Here the idiotic may prolong their existence, and perpetuate their species; for the degree of imbecility must be great indeed, to disable an individual from expending a stated income, or from partaking in the peaceful and monotonous labours of agriculture and manufactures; they are not left to perish, helpless and unfriended, as in the wilds of America; or even, if we may believe some travellers, as in the north of Europe and Asia. The madman who, in the one situation, would quickly fall a victim to his unconscious crimes and eccentricities, is in the other protected by equitable laws; has his property guarded by official trustees; all the resources of art are expended in mitigating his calamity, and he but too often leaves behind him a numerous progeny, who feel through all their ramifications, the evil entailed on them by their ancestor, and extend it in every direction. Blindness, deafness and dumbness, which, in the savage state, are incompatible with those exertions by which alone life can be supported, we too often see perpetuated in Europe, in one family, from generation to generation. Individuals with tuberculated lungs, who, in the vicissitudes of savage life, would quickly fall victims to pulmonary inflammation, are protected by the refinements of civilization from the inclemency of the seasons; and are usually preserved, by medical interference, and the comforts of domestic life, long enough to leave families to lament their untimely loss. What multitudes of people do we not daily see, who, by judicious diet, change of air, medical treatment, surgical operations, and other remedial powers, unknown to the uncultivated savage, are rescued from the mortal grasp of pleuritic, of gouty, of rheumatic, or of strumous inflammation, to drag about for the remainder of life a broken constitution, or a mutilated person, and to transmit to posterity a precarious existence, and the seeds of irremediable disease!

The almost total extinction of the smallpox, and the improved method which, since the time of Sydenham, has been

adopted in the treatment of the eruptive and other continued fevers, are, in my eyes, very forcible reasons, why we should expect to find an increasing number of individuals of imperfect intellect, and delicate frame. For, of old, when art offered no resistance to their desolating march, and ignorance and neglect conspired to increase their terrors, woe to the unfortunate wretches in whom there lurked the seeds of cerebral or pulmonary disease! Few but those who inherited a constitution most vigorous and unimpaired, survived from among the thousands who fell under the ravages of the epidemic; and, in one point of view, these periodical visitations seemed as beneficial to society as the tremendous hurricanes which disperse the poisonous exhalations of the tropical swamps.

And besides these causes which operate in general to the perpetuation of hereditary morbific predisposition, there are moral causes which operate in civilized society to the production, more particularly, of mania, and its probable increase.

We always observe, that, among nations that have made some little advance towards civilization, that have organised their resources so far as to have obtained a tolerable internal supply of the necessaries of life, and have abandoned their predatory habits, and acquired some ideas of religion, the insane and fatuitous have been looked on with superstitious horror or veneration; and if not consigned to prisons or starvation, they have been alternately, with the varying prejudices of the age, exorcised and sacrificed as wizards, or consecrated as priests.

The history of Europe furnishes frequent instances of both these extremes of superstition. During the dark ages, and those immediately succeeding them, when the spiritual tyranny of the popes was quietly submitted to, and men had no idea of inspiration coming from any other source than the devil, of the countless thousands who were consigned to the stake as witches and wizards, the majority were indisputably insane; and this spiritual purification appears to have been sufficiently extensive to reduce considerably the numbers of those miserable beings whom the imperfect police of those barbarous times would otherwise have left to perish for want of sufficient care and sustenance.*

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* Volumes might be filled with the records of these atrocities. "Horret enim animus meminisse," says Mead, "quot hominum innocentium myriadas post Christum natum varias apud gentes flammis damnaverit veneficiorum suspicio: dum ipsi forsan judices aut vanis opinionibus cœcarentur; aut ab irata plebe sibi metuerunt, si, quos illa reos præjudicaverat, sententiis suis absolvissent. Ecquis credat quenquam sanæ mentis voluisse, id sibi laudi ducere, quod *nonagenta circiter veneficii reos, intra annos quindecim, in unica Lotharingiæ provincia ipse capitis damnasset.* Et tamen ex permultis quas idem narravit historiis illorum, qui pœnas dederunt, manifestissime apparet *eos omnes* non, ut ipsi imaginabantur, cum dæmonibus pacta habuisse, sed *revera fuisse mente captos;* adeo ut palam confiterentur ea se facinora perpetrasse

But when the Lutheran and Calvinistic reformations had opened the eyes of mankind to the absurdities of papal domination, the persecution against witchcraft, in a great measure subsided. At the same time, public opinion, which had set so strongly against them, veered about suddenly the other way; and while in Catholic countries innumerable hospitals began to be erected for lunatics, whose persons and estates were now taken under the especial care of the ecclesiastical authorities, the deserters from the standard of St Peter began to set up infallible guides of their own, and to believe as firmly in the immediate inspiration of the Deity, as they did formerly in the special agency of the devil, and the divinity of priestcraft. If the Catholic erred in investing the traditions of the church, the decrees of popes and of councils, with equal authority to the Bible, sects of Protestants erred in a contrary direction, by finding in pretended revelations and fancied inspirations authority to direct its interpretation. God forbid that I should speak with contempt or irreverence of the sincere convictions of any of my fellow creatures, however far their minds seem to me to wander from the object of their search! but even the most candid, and I would fain be reckoned among such, cannot but allow, that many pious, but credulous men, have been the dupes of self-deceivers, whose pretensions, a reasonable share of scepticism, and a little knowledge of the philosophy of the human mind, would easily have enabled them to detect; that the wanderings of a disordered intellect have been too often mistaken for spiritual illumination, and that (and I believe that the fact is as notorious as that the population of France is larger than that of Britain) the proportion of insane is immensely great in those sects that lay the most confident claims to immediate inspiration.

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quæ ipsa rerum natura fieri non patitur." Vide "*Medica Sacra, auctore R. Mead, Medico Regio, Londini*, 1749." Perhaps Nicholas Remigius, for that was the name of the wretch who made it his boast, that, in the short space of fifteen years, and, in a single province, he had consigned to the most miserable of deaths nine hundred human beings, guilty only of imaginary crimes, was more than ordinarily zealous in his vocation; but the bare statement of the fact is a melancholy indication of the state of public feeling at that time. There is no doubt but that a much smaller proportion of executions would be sufficient to extirpate insanity as fast as it could appear, and that the average of individuals sacrificed at that time throughout Europe was immense. The histories of the inquisitions of Spain, Portugal, Sicily, and Naples, show, that for many ages after the Reformation, a vast number of individuals, nine-tenths of whom were clearly lunatics, were annually immolated by these infernal tribunals. See an account of an *auto da fe* which took place so late as the early part of the eighteenth century at Naples, in the London Magazine for December 1825. Considerable sacrifices took place in the seventeenth century among the reformed nations, particularly in Britain, Germany, and New England. It is remarkable that these latter usually took place after the subsidence of some political convulsion. The *auto da fe* I have just alluded to, took place about the time of the publication of Mead's Work, which I find among the list of books prohibited by the papal authorities.

It is certain that this consecration of insanity, if I may use so harsh an expression, has favoured its increase, in so far as it has occasioned individuals to be regarded as sane, and to enter into domestic relations whose insanity had been sufficiently evident, if their minds had wandered on any subject less sacred than religion. But I do not think that it has operated to the extent that many suppose; for we always observe, that persons predisposed to insanity, even before they have shewn any marked aberration of intellect, imbibe new opinions, especially on religious subjects, with great facility, and quit their old ones on very insufficient grounds, and place implicit faith in any doctrine or opinion that gets thoroughly impressed on their imaginations. Hence, when any new and striking doctrine in religion is broached, it is sure to have many supporters of this class; and when any of these individuals become permanently insane, the subject of their ravings are invariably the dogmas of their sect, and to these their madness is attributed. From this cause, much unjust odium has been thrown on different enthusiastical sects, and, of late, particularly on the methodists; but we must carefully separate the cases of insanity rendered evident by excitement, from those concealed under the mask of religious zeal and illumination; in the latter case, the insidious evil may be entailed on posterity; in the former, it is rendered evident; and however deeply the individual and his immediate relations may suffer, perhaps, on the whole, humanity is the gainer.

That the number of consumptive persons has, of late, immensely increased, there is I believe no doubt. But it has recently been stated by M. Esquirol, and his opinion is certainly entitled to the greatest respect, that the number of maniacs in France has not increased within the last forty years; and that, during the excitement of the revolution, there were no more maniacs in the hospitals than there were before and after that era. Observations made, during so short a period as forty years, even admitting their correctness, will go but a very little way in proving that insanity will not perceptibly increase in the course of some dozen generations. But Mons. Esquirol's observations unfortunately prove too much the other way. Out of 3943 lunatics admitted, he says, into the Parisian hospitals, between the years 1804 and 1814, 2149 were *sent back to their families cured*, and he congratulated his countrymen on the improvements they have put in practice in the treatment of lunatics. Certainly the fact redounds to the honour of himself and his colleagues; for if these four thousand unfortunates had been consigned to that horrible system of torture and coercion, which was, until lately, in full force over Europe, and which yet disgraces some parts of it, it is more than probable that one-half of them, instead of being recovered by the mild and judicious

treatment of the Parisian physicians, so far as to be able to return to their families, would have perished under the rigours of their confinement, and the remainder been consigned to perpetual imprisonment in a state of incurable alienation. But when we consider that in these 2000 maniacs, it was not the predisposition that was cured, but merely the excitement that was obviated; and that it is extremely probable that, by the marriages and intermarriages of these individuals, the morbific predisposition may be communicated to thousands of families, and to innumerable generations yet unborn, we shall find, I fear, few reasons for congratulating ourselves on the ultimate advantages accruing to the human race, and much occasion for gloomy anticipation.

Nor will any statistical evidence convince me, that during the French Revolution the number of cases of excited insanity would not increase. For, during that sanguinary reaction, and during similar periods of national frenzy, innumerable cases of genuine insanity would pass unobserved under the mask of extraordinary political or religious zeal. In the different religious commotions that took place during the sixteenth century among the free cities of Germany, and in Britain during the seventeenth, fanatics started up in every corner, making the most extravagant claims to personal inspiration, many of whom, under the extremity of persecution, gave abundant proofs of the sincerity of their professions, whose insanity cannot now be a matter of doubt. But all these individuals had their friends and admirers, who implicitly acceded to their pretensions, and who would have torn to pieces any one who had hinted to them that the objects of their admiration were crazed. In like manner, during the storms of the revolution, the blind rabble elevated to absolute power, and listened with admiration to the harangues, of wretches, who, at the present period, would be consigned to the care of MM. Esquirol and Pinel.

Perhaps, however, we may rationally indulge a hope, that, in the hidden resources of a bountiful Providence, there is some remedy in store to check the progress of this terrible evil; and that beautiful system of compensation, which we observe in the government of the human race, and which seems to leave no evil, whether moral or physical, without its appropriate remedy encourages the idea. This check, if any such be found, must, I am convinced, be looked for in the moral feelings of mankind; for when the formidable nature of the evil becomes more fully appreciated, individuals of sane families will become loath to unite themselves to those who are predisposed to mental or bodily disease, and thus the families of the latter description, may possibly become insulated and gradually worn out, from celibacy, and the concentration of infirmity from mutual alliances.

And, unless the operation of the causes I have mentioned, as tending in civilized society to the increase of hereditary morbific predisposition, be corrected in this, or some similar manner, a few more centuries of civilisation, refinement, and luxury, will, in all probability, find the human race one melancholy accumulation of fatuity, madness, and disease.

The progress of pulmonary consumption, which, in particular, within the last century, has increased to such a terrible extent, might, I think, be checked on this principle, in a very simple manner. It is well known that if individuals, who are predisposed to it, survive a certain age, they are sufficiently safe from its attacks. Thus, for instance, three-fourths of the members of a numerous family shall perish at some definite age, generally between the twentieth and thirty-fifth year, and the period at which the attack may be expected, is, in general, pretty well known, and those who survive it may be considered out of danger. Now I think that it is an indispensable moral duty of individuals, in such circumstances, to refrain from entering into domestic relations until that specific period is past. If such were more generally the case, we should seldom meet with those examples of melancholy destitution which we so often see occasioned by the death, in the prime of life, of the parents of numerous and helpless families; a much smaller number of children would be born to inherit and transmit impaired constitutions; and the proportion of consumptive families, and consequently of the mortality, would very rapidly diminish.

CARLISLE,
Dec. 28. 1825.

ART. XIV.—*Report made by M.* MAJENDIE *to the Academy of Sciences* (*at their Meeting, July* 1825), *on the subject of a Boy, named Honoré Trezel, Deaf and Dumb from his Birth, who obtained Speech and Hearing under the care of Dr* DELEAU jun.

AT the sitting of the 10th May 1824, M. Percy made known to the Academy, that a deaf and dumb boy, named Trezel, had lately acquired hearing under the care of M. Deleau. The success had been as complete as could be desired. The child, who before the operation was entirely deaf, had been enabled to hear all descriptions of noise, and even to notice certain intonations of the voice.

But Trezel was notwithstanding far from having acquired the knowledge of sounds, though he enjoyed the faculty of hearing. An immense interval still separated him from child-

ren of his own age, who were possessed of a good organization. Noises of all kinds, the accent of the voice, the words which were addressed to him, as well as those which he endeavoured to form in his larynx, were only to him a source of new sensations which delighted him; but he drew no other use from them. He was ignorant of the great advantages of language, and perfectly unaware that the vague and strange sounds that he sometimes produced with his vocal organ, might be the means one day of enabling him to express his wants and his thoughts. A melancholy experience has, in other instances, shewn, that, if such a deaf and dumb patient, under these circumstances, be merely left to the care of his family, his sense and his intelligence will remain in a state which is not much superior to that in which he found himself before his cure had been completed. As soon, therefore, as Honoré Trezel had obtained the faculty of hearing, such an education was required as might be a substitute for that which his infirmity had prevented him from receiving, and which should enable him to avail himself of the sense that he had just recovered so happily. At the meeting in which M. Percy announced the result of the operation performed upon the young Trezel, he added, that M. Deleau was engaged in the instruction of this child, and that he would make known the result of it to the Academy. M. Deleau has kept his promise.—"Trezel was presented to you in one of your last sittings. He repeated from memory the fable of the fox and the crow, performed different exercises of analysis; and you have been enabled to judge yourselves of the state of his hearing, of his voice, and of his degree of intelligence, after nine months of assiduous care. This fact is so much the more important, as none of the deaf and dumb, who have obtained the faculty of hearing by an operation, or who have acquired it spontaneously, have been observed a sufficient length of time, by men of information, who could inform us what change has been effected in them, by a new sense intervening all at once in the midst of senses already tried; or who could make known what alterations have taken place in the intelligence, the instinct, the speech, or the motions of such individuals, by the development of a function so important as that of hearing; or, lastly, who could acquaint us, whether a person born deaf and dumb, and who had acquired hearing, is capable of entering into all the relations of social life,—or whether he is not apt to step out of their bounds. It is evident that many interesting physiological questions connect themselves with the treatment of M. Deleau; and for this reason, commissioners were appointed by you, who have considered it their duty to collect and verify all the circumstances of the case. What I am going to relate is an abstract of the report made on the occasion."

Claude Honoré Trezel, now ten years of age, born at Paris, of poor parents, was of that class of the deaf and dumb who did not even hear the most violent noises, or the loudest explosions. His forehead was large, and his head well made; but his physiognomy, the image of his intelligence, had little expression. He dragged his feet in walking; his gait was tottering; he did not know how to blow his nose; and had, in other respects, received no education adapted to his situation. He made his principal wants known by a definite number of signs.

The operation which was performed was not a new one; it was invented towards the end of the last century by a deaf person of Versailles, who, fatigued with his situation, succeeded in curing himself. It is now adopted by all the physicians who treat disorders of the ear; it has, above all, been frequently employed in practice by Dr Itard. It consists in injections of air, or of different liquids, into the drum of the tympanum, by the tube, which ends in the back part of the mouth. It has many serious inconveniences, which happily did not present themselves in the case of young Trezel *.

The days which immediately followed an accession to hearing, were for Honoré a period of rapture. The noises which he heard gave him ineffable pleasure; he sought them with avidity: on hearing a musical snuff-box, he was in a sort of extasy. But there was a certain time required before he could perceive that speech was a medium of communication; besides, he attended at first, not merely to the sounds which were formed, but to the movements of the lips by which they were accompanied; and thus he believed, during some days, that a child seven months old spoke like grown-up persons, merely because he saw his lips make movements. But he was soon taught his error; and he was aware from that time that it was to the sounds he should attach importance, and not to the motions of the lips.

But it unfortunately happened that he heard a magpie pronounce some phrases. In generalizing on this particular fact, he concluded that all animals were gifted with speech, and consequently was anxious to oblige a dog to speak, of which he was very fond. He even resorted to violence to make him say *papa*, *du pain*, the only words that he could himself yet pronounce; but the cries of the poor animal terrified him, and he desisted from his attempt.

These first periods of hearing produced a great change in the

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* It has been explained, in a separate work published on this case, that injections of water, by means of a small flexible sound, were forced into both the Eustachian tubes. These injections were not either accompanied by those dreadful pains which sometimes determine fainting, and oblige the treatment to be suspended, or followed by abscess and suppuration in the drum, which resist all hope of cure.

physical state of Trezel. His gait became more firm; the mournful expression of his face was changed into a smiling and gay air; he learned to blow his nose, and ceased to drag his feet in walking.

A month had passed away, and Honoré remained nearly at the same point. Absorbed by his sensations and his new remarks, he could not comprehend the different syllables which formed words; and nearly three months were necessary before he could distinguish some compound words,—before he could know their sense, and that of short and simple syllables.

It was likewise a length of time before he knew the direction of sound. A person having concealed himself in the room where the boy was employed, called out to him, but it was with considerable difficulty Trezel discovered the hiding-place of the individual who hailed him; and this discovery was much more owing to the eye, and to the reasoning at which he had arrived, than to the employment of the ear.

All the interest, however, which Honoré felt in the sensations procured him by his hearing, had not prevented him from making one observation of the greatest importance,—his larynx formed sounds; and to the pleasure of hearing them was superadded that of being able to produce them. It was in this that Trezel's case displayed the most curious and the newest phenomena.

The instrument of the voice is composed of a great number of different parts, among which are found muscles, bones, cartilages and membranes; consequently, it would have been wonderful, if, without some preparatory exercise, all these parts, all these organs had acted at once in concert, so as to produce vocal sounds and appreciable articulation; this, as we ought to expect, did not happen. The first sounds that Trezel was enabled to utter were dull and heavy; he pronounced, not without difficulty, A, O, U. The two other vowels came much later, and the first words that he formed were *papa*, *tabac*, *du feu*, &c. But when he wished to repeat more complicated words, he made a multitude of contortions of the lips, of the tongue, and of all the agents of pronunciation, of the use of which he was entirely ignorant, resembling, in this respect, a person who begins to learn the art of dancing or swimming, and who exhausts himself in useless efforts and ungraceful movements.

But induced by temptations, he acquired the pronunciation of some compound words, which had at first been beyond his abilities.

It was at the moment of making this attainment, that he conceived himself on a level with other children of his own age. Satisfied with himself, therefore, and proud of his new situation, he treated his old companions in misfortune with great disdain,

and wished to see them no more. Few persons who had seen him at this time would have discovered in him a happy disposition.

But, notwithstanding this little emotion of vanity, Trezel advanced slowly in pronunciation. He left out a great number of syllables, or rather he articulated them in a very defective manner. Perhaps he would never have overcome this difficulty, if recourse had been merely had to his organs of hearing, but an appeal was likewise made to his sight. Different syllables were delineated for him, and from this moment he pronounced them much better, comprehending with much more clearness the assemblage of vowels and consonants, and the reciprocal influence which these exert upon each other. Thus, a very remarkable fact was proved; namely, that the association of the sight with the movements of the larynx was prompt and easy, while that of the hearing and of the organ of the voice was always difficult, and was only exercised with slowness. For example, as soon as Honoré perceived written syllables, he pronounced them, if, at the same time, they were reverberated close to him; but if the table on which the letters were traced was carried away, in vain were certain syllables articulated in his ear, in the most distinct manner possible; to articulate them himself was an impossibility. He comprehended much more easily the affinity of sounds to written letters, than to the action of his larynx.

By constantly adhering to this mode of proceeding, Trezel has learned to read and write with sufficient rapidity, but after a manner which is similar to that of persons who learn a strange language, and who, in general, read it and write it long before they can speak it. Up to the present moment, Honoré reads with his eyes, and writes infinitely better than he speaks

His pronunciation is very defective. The Rs in particular rumble in his mouth in a most singular and disagreeable manner. The different varieties of accent seem unknown to him; but when we consider the point from which he set out, we ought to be fully satisfied to see in him the degree of instruction which he displays in so short a time.

Honoré exhibits another phenomenon, which has excited the attention of the Commissioners of the Academy. When a word is said distinctly to him, he repeats it immediately; when he is hailed, for instance, he does not fail to pronounce his name; it only appears of consequence to him to reproduce the word which he may have just heard. If his instructor would wish to address himself to his mind, he employs for the purpose gestures or expressions of the countenance. It is by signs only that the youth expresses himself with ease and quickness, and it is only by the employment of these signs that a judgment can be formed of his intelligence, and of the quickness of his conceptions.

In this point of view, Honoré presents a phenomenon highly

interesting. Having acquired a new medium for the expression of his ideas, it might be supposed that he would have neglected the method so greatly inferior to speech of which, until then, he had availed himself. But, up to the present time, the contrary has happened; his natural language, namely, that of signs, instead of being lost and gradually replaced by speech, has rapidly improved, and acquired a perfection and quickness much superior to that which it displayed before he had recovered his hearing.

However, in his connections with children of his own age, Honoré begins to employ simple words, and particularly substantives, to make known his principal desires. Perhaps the time may arrive when he will make a more frequent and complete use of speech; but in this respect it is possible that he may always remain far below other men. For we have numerous examples of children who may be called dumb, only because there requires in them a certain effort of the ear to comprehend words, and rather a difficult exertion of the larynx to speak. Finding, by the employment of signs, an easy medium of communication, they neglect to exercise the ear and the organs of speech, and thus remain classed among the deaf and dumb, when in reality they are neither dumb nor deaf.

But, to return from this digression.—Honoré Trezel, who had been completely deaf,—even to such a degree, that a year ago he did not hear the loudest detonations, now listens attentively to all noises, knows when they come from afar off, distinguishes their character, avoids carriages and horses, and goes to open a door when any person knocks. He knows how to appreciate the musical rhythm, and takes pleasure in listening to singing and musical instruments; he tries even to imitate the modulated voice, without, however, having been yet able to succeed. He knows how to appreciate and repeat all the articulations of our language; he comprehends, he analyses, repeats from memory a certain number of phrases within his capacity, and he replies to them. He executes what his instructor by words directs him, but with other persons he is not yet able to do this, for the same reason that we comprehend a foreigner, when we are accustomed to his pronunciation, and for the same reason that we are entirely incapable of comprehending him when he speaks to us for the first time.

Here are assuredly results sufficiently gratifying. When we take into consideration all that this child has learned before arriving at his present condition, as well as all the ideas and new combinations of them, which have been indebted for their operations in his mind to the instinctive associations which have been established between his ear and his intelligence,—between these again and the organs of voice,—between his ear and his

larynx, we have no difficulty in flattering ourselves with the hope, that his moral condition and his physical state will continue to improve.

But let us not anticipate the future; let us rather wait the result of experience, which in this, as in all new questions, can alone enlighten us.

Your commissioners think that the efforts of M. Deleau to impart the blessings of social life to beings who, in a great degree, had been separated from it by nature, are deserving of the eulogium of the Academy; that the results at which he has arrived in the young Trezel, are very important, and worthy of the most lively interest. They propose to you to engage M. Deleau to continue the education that he has so happily begun; to multiply as much as possible observations of the same kind, and thus to lay the foundation of a species of instruction or education, which ought to be esteemed among the number that ameliorate the condition of the human race.

(Signed) Dumeril.
Geoffry St Hilaire.
Majendie, *Reporter*

Art. XV.—*Observations upon Sea-Sickness.* By W. G. Maxwell, M. D., Sec. Plinian Society, and Surgeon in the H. E. I. Company's Service.

1*st*, On the approach of the state of *marine nausea* or sea-sickness, the temperature of the body feels reduced; by and by the face becomes pale, and the hands soon appear to be utterly destitute of blood. The head now feels unusually light, and the powers both of mind and body are completely destroyed; at this time nothing in the world can afford pleasure or amusement. If this state of collapse, as it were, continues long, sickness invariably follows, attended (even when the stomach is completely emptied) with violent retching.

2*d*, If we can find out who are *not* liable to sea-sickness, we of course shall know who *are* liable to it. It has been long a practice to send consumptive people to sea for the improvement of their health; but it is well known that they seldom derive any benefit from the measure, and that they never are troubled with sea-sickness. Now, the constitutions of all phthisical individuals are very irritable; their circulation is, for the most part, full and rapid; their lungs, too, are generally congested, and hence the headachs or disordered cerebral circulation that is almost always met with in such unfortunate persons. We must therefore expect to find the constitution of those who are liable

to sea sickness widely different, and such certainly is the case. Indeed, I have always remarked, that those troubled with sea-sickness were apparently of very healthy and robust constitutions, and I never recollect seeing any one sea-sick, who could be styled either a feverish or consumptive looking person.

3d, The remedies proposed for this complaint are without number; but there are three which I have heard recommended in preference to all others: these are, drinking a little brandy, walking to and fro upon the deck, and retiring to bed, or to the horizontal posture. A few recommend sedatives and artificial pressure. I have tried all these, and the most efficacious, I must say, is the brandy. Once, indeed, when I was very sick, I was persuaded it removed the tendency to vomit. It increased my circulation, and soon removed the sensation of cold, and whiteness of my skin. It is also evident, that exercise must tend to produce the same state of excitement, but with less effect. The horizontal posture, too, must aid the right circulation of blood in the brain, and, consequently, sea-sickness, under these circumstances, will not be so liable to happen. To be brief, all the remedies which I have heard of, must, from their nature, tend to remove the state of depression which has been mentioned, as antecedent to the fit of sickness. In fine, *I consider the rolling of the vessel to act in the same way as any other emetic;* and we have seen, what is well known of the other agents which produce vomiting, that *some require a stronger dose of this emetic than others.* It need hardly be remarked, that, whenever the force of the heart is reduced below a certain pitch, the action of the nervous system is perverted, and the functions of the body either remain stationary, or assume diseased actions.

But, in many instances, the most powerful emetics will not induce this state; and if we inquire what these instances are, we shall find that they are those in which the circulation is in a high state of excitement. How the rolling of the vessel acts it is impossible to tell; we can only notice its effects, and we have stated, that, like other emetics, it acts easiest upon those in whom there is the least excitement of the circulation. *In fine, to cure or prevent sea-sickness, it will be necessary to induce a condition diametrically opposite to that state of depression, which every one knows to be the forerunner of a fit of sickness.* This sketch of my sentiments, respecting the still obscure affection of sea-sickness, may, in many particulars, appear deficient; but I found that, had I allowed my pen to follow my thoughts, the article might easily have been brought to fill a moderate octavo.

Wm. Graham Maxwell.

Woodhouselees,
Tuesday, 18*th Oct.* 1825.

PART II.

REVIEWS.

I. PRACTICE OF MEDICINE.

ART. XVI.—*Remarks on Irritative Fever, commonly called the Plymouth Dock-yard Disease; with Mr Dryden's detailed Account of the Fatal Cases, including that of the lamented Surgeon Dr Bell.* By JOHN BUTTER, M. D. F. R. S. F. L. S. and W. S. Fellow of the Royal College of Physicians in Edinburgh, and of the Royal College of Surgeons in London; Member of many Medical and Phrenological Societies in London, Edinburgh, Paris, Philadelphia, &c. &c.; President of the Western Medical and Chirurgical Society, and Physician to the Plymouth Eye Infirmary. Pp. xviii. 302.

THE summer and autumn of the year 1824 were remarkable for a great mortality, supervening upon surgical accidents, apparently of a trifling nature, among the artificers employed in his Majesty's Dock-yard at Plymouth. It is calculated that, upon an average, between three and four thousand men annually wound, or otherwise injure themselves, in following their mechanical occupations in the dock-yard, to such an extent as to oblige them to apply for chirurgical assistance; and that, of the aggregate number, about four hundred, or about the proportion of one to nine or ten, are for a time incapacitated from pursuing their labours. During the last six months of the year 1824, viz. from the 24th of June to the 31st of December, upwards of 250 of these mechanics were laid up from their duty, in consequence of various hurts, more or less severe, but none of them presenting any thing peculiar in their character or consequences.

In fifteen other patients, however, including Dr Bell, the surgeon of the Dock-yard, who scratched his finger slightly in a post-mortem examination of one of the bodies, the accidents were succeeded by local inflammation, chiefly of an erysipelatous kind, and fever; and twelve of the persons so affected died. Mr Dryden, who had been officially connected with the establishment, in the capacity of assistant surgeon, for ten years previous, had, during that period, known only two instances of men dying from fever occasioned by local injuries. And we subjoin, in confirmation of the rarity of such an occurrence, the statements of Dr Cowan, the surgical superintendant, we believe, of the Dock-yard at Portsmouth, and of Mr Copland Hutchinson, of the Royal Naval Arsenal at Sheerness, to whom Dr Butter applied for information on the subject. Dr Cowan says,

"In answer to your question, whether a similar affection has ever prevailed in this establishment, I beg leave to assure you, that, although erysipelatous inflammation, accompanied with much constitutional derangement, has occasionally and unexpectedly supervened, on the most trifling injuries, *not a single death* has occurred in consequence these twelve years."—P. 126.

Mr Copland Hutchinson remarks,

"Since I have been employed at this Dock-yard, I have never seen any of the consequences you allude to as having recently occurred at Plymouth Yard; and my colleague Mr James Brown says, that, during the period of a year that he has performed his duties here, he has not even *once* seen any bad consequences to result from wounds, bruises, or other accidents; and my friend Dr Dunn of Woolwich Yard, during the twelve or fourteen years he has been the principal surgeon of that arsenal, states, that although he has been, and continues to be, very much plagued with ulcers, erysipelas in any shape has not been a prevailing complaint, after such wounds as are now under consideration."—P. 234.

It is to Mr Dryden principally that the author, who is not officially connected with the Dock-yard, is indebted for the particulars of the fatal cases at Plymouth; for, as Dr Butter was absent from home during the prevalence of the disease, he had the opportunity personally of watching the progress of the symptoms in one patient only, who recovered.

The great fatality attending the complaint naturally gave rise to much alarm, and to many exaggerated and unfounded statements in the neighbourhood; and to tranquillize the one, and to correct the other, as well as to preserve a record of the leading facts and circumstances of the visitation, appear to have been Dr Butter's inducements for collecting the *disjecta membra*, and presenting them as a whole to the public.

Previous to entering into any detail in regard to the individual cases, it may be convenient, as well as interesting, to extract from the work a Table of them in the aggregate, which exhibits at one view the ages of the patients, the nature of the respective accidents, the date of the supervention of fever, its duration, and the ultimate result.

No	Names.	Age.	Local Injury.	When received.	Commencement of Fever.	Its Duration.	Result.	When died or recovered.
1	W. Cowle,	45	Puncture from a nail in his foot.	Between 25th & 31st July.	Aug. 1.	About 15 days.	Death.	Aug. 15.
2	J. Henwood,	45	Laceration of his hand by a saw.	Aug. 4.	Aug. 6.	67 or 68 days.	Do.	Oct. 11.
3	J. Bate,	45	Left fore-finger jammed off by wood.	Aug. 16.	Aug. 20.	5 days.	Do.	Aug. 25.
4	W. Butters,	40	Nail torn off his right ring-finger.	Aug. 10.	Aug. 18.	About 4 weeks.	Recovery.	Oct. 11.
5	R. Horne,	32	Left great toe bruised.	Aug. 30.	Sept. 1.	15 days.	Death.	Sept. 14.
6	J. Nichols,	45	Abrasions on right shin-bone.	Sept. 7, 8, or 9.	Sept. 13.	6 days.	Do.	Sept. 19.
7	W. Lobb,	40	Chin contused by a nail.	Sept. 13.	Sept. 18.	Nearly 2 months.	Recovery.	Nov. 29.
8	J. Rawling,	40	Three fingers jammed.	Sept. 17.	Sept. 19.	6 days.	Death.	Sept. 25.
9	Dr Bell,	58	Scratch on right fore-finger.	Sept. 19.	Sept. 20.	5 days.	Do.	Sept. 24.
10	J. Walker,	38	Abrasion on the inner ancle.	Sept. 13.	Oct. 1.	5 days.	Do.	Oct. 5.
11	W. Reaves,	44	Abrasion of left shin-bone.	Oct. 9.	Nov. 3.	12 days.	Recovery.	Dec. 27.
12	W. Taylor,	42	Laceration of great toe by a saw.	Aug. 2.	Aug. 9.	5 days.	Death.	Aug. 14.
13	J. Quick,	37	Fracture of right great toe.	Aug. 18.	Sept. 22. or 23.	6 days.	Do.	Sept. 29.
14	J. Long,	37	Contused finger and abraded leg.	Aug. 27.	Sept. 8.	2 days.	Do.	Sept. 10.
15	T. Beer,	40	Hand wounded by glass.	Sept. 14.	Sept. 19.	5 days.	Do.	Sept. 24.

Our attention will first be directed to the case of Dr Bell, the superintending surgeon. This gentleman, who, from the unprecedented fatality which had occurred among the artizans of the Dock-yard (six persons had already fallen victims to this disease), as well as from the unfavourable appearance which the wounds of the survivors generally assumed at this period, had undergone much anxiety of mind as well as bodily fatigue, was exposed to heavy rain, in crossing the water to visit a patient at Torpoint on Saturday, September 18. His general health, although he was occasionally subject to dyspepsia, had previously been good. On the afternoon of the following day, Sunday the 19th, he attended the examination of the body of Nicolls, who died the same morning, six days after the commencement of fever, supervening on slight abrasions of the skin over the shin-bone.

Dr Bell, while so employed, " scratched his right fore-finger over the extensor tendon on the last phalanx, when he was directing a pupil how to sew up the body with a surgeon's needle which had been previously used for that purpose. At this time the Doctor appeared in his usual state of health, and took no particular notice of the puncture or scratch so inflicted on his finger.

" On the following morning, September 20. Dr Bell attended the surgery at the accustomed hour of nine o'clock, and complained of being unwell. When washing his hands, he first felt a smarting in the scratch over his right fore-finger; whereupon he became shivered, and impressed with an idea that he had caught the disease then prevailing among the mechanics of the dock-yard, which disease had previously agitated his mind, and now made him very apprehensive for his safety. He remained, however, at the office, about an hour and a half, and by that time the rigors and general indisposition had increased to such a degree as to produce considerable alarm.

" Pulse 96, and full. Bowels opened by an aperient taken on the preceding evening. The wound on the finger was not inflamed. He was recommended to lose blood from the arm, and to take an emetic, to both of which proposals he had a great aversion, and made insuperable objections. He went to bed, however, before twelve o'clock at noon, and endeavoured to make himself sick by irritating his fauces with his fingers, and by drinking warm water. In the course of the day, his fever had increased, and a reaction or flushing followed the rigors. Dr Dickson, physician to the Royal Naval Hospital at Stonehouse, and Dr Yonge of Plymouth, were consulted. He now consented to lose about sixteen ounces of blood from the left arm, by a small orifice, and to take the subjoined bolus:

" ℞ Hydr. submur. gr. v.
Pulv. antim. gr. iv.
Confect. q. s.——M.

which was to be followed by some of the cathartic mixture in the morning.

" 21*st*.—Passed a restless night, with an increase of fever. Pulse 130, and full; stomach very irritable; nausea great; tongue coated; bowels open; complains of pain and tenderness over his right pectoral muscle and shoulder, on which he cannot bear the least pressure; but the wound on the right fore-finger is not at all inflamed.

" Rep. V. S. ad ℥xxx.

" Ordered effervescing draughts, with saline medicines, every second hour.

" *Eight o'clock* P. M.—No relief from the second bleeding. The blood was neither buffed nor cupped: the coagulum was rather firm. Speaks of a distressing pain about his sacrum and loins, with general lassitude and great weight, and evinces considerable anxiety. There still exists much soreness over the right pectoral muscle, and there is a great prostration of his muscular energies; but withal there is no headache. Pulse 130, and small.

" Rep. bolus, et cont. haust. efferves. cum potassæ nitratis gr. v. tertiis horis. Illinatur linim. saponis in partes affectas.

" 22*d*.—Symptoms all aggravated. Passed a sleepless and distressing night, owing to the excruciating pain in his back, but felt relief towards morning, from profuse perspirations. Still feels pain in his right shoulder, with inability to move the arm; complains of indistinct vision, and mistakes the distance when he attempts to take any thing. Nausea continues. Pulse 130, and irregular,

" App. emp. lyttæ epigastrio. Medicament. cont.

" 23*d*.—Slept a little during the night; nausea alleviated, but not gone; backache mitigated; pulse very irregular, and frequent; articulation difficult; thoughts confused; no pain in any part, but the pectoral muscle when pressed upon; there is no redness or visible sign of inflammation on the skin; the scratched part of the finger is neither inflamed nor swollen. He took camphorated mixture, with the nitrous spirit of ether, every two hours, and wine frequently.

" Towards evening, his breathing became laborious, and delirium appeared.

" App. emp. lyttæ suris et imo colli.

" 24*th*.—Became perfectly insensible during the night; pulse wavering, occasionally indistinct, and imperceptible; breathing laborious; stupor and coma present; the sphincters relaxed, and the discharges passed involuntarily; profuse perspiration towards morning, when the breathing improved. Took four doses of the sulphate of quinine, without benefit. His deglutition was at last impeded, and a vacant stare occupied his countenance, until seven o'clock this evening, when he sunk without a struggle. Body not examined."—P. 61.

The author enters into a long, elaborate, and, as it appears to us, rather unnecessary discussion as to the *causes* of Dr Bell's death.

He says, " every allowance must be made for his *solicitude;* and it is not for me to determine, whether or not such a disturbed state of mind, *unaided by other morbific agents,* could, *of itself,* have caused his death, as I was not consulted about him."—P. 64.

Now, we have no hesitation in expressing our own conviction that the cause alluded to by Dr Butter was by no means sufficient to occasion the melancholy event. He admits, indeed, that he has never known an instance in which death has followed terror or vexation, and where a corresponding train of symptoms has been presented. He also remarks, that

" Soldiers going into battle,—culprits ascending the gallows,—mariners shipwrecked, viewing their watery grave, do not perish from apprehension. A situation fraught on every side with peril and disappointment, may operate dreadfully on the human mind, and yet not deprive the aggrieved of existence."

To us it is not evident that Dr Bell's case had any necessary or immediate connexion with the disease simultaneously existing among the labourers in the Dock-yard ; for, unlike the other patients, he appears, during the progress of his complaint, to have been free from erysipelatous or other local excitement. It is stated that, throughout his illness, the injured finger exhibited no signs of inflammation.

Dr Bell's death seems, in truth, to have been occasioned by an occurrence, with the occasionally fatal consequences of which the medical public is but too familiar,—an occurrence which, within these few years, in the persons of Professor Dease of Dublin, Dr Pett of Clapton, and others, has prematurely deprived the profession of some of its meritorious and intelligent members. The slightest scratch or wound received in dissecting a dead body, is, it is well known, sometimes followed by great constitutional irritation and fever, terminating in death. The injury inflicted bears, apparently, no sort of proportion to the mischief of which it is the forerunner. In short, the subject is involved in much obscurity.

The idea entertained by some anatomists of the inoculation and absorption of a morbific poison, is, in many of these cases, not tenable ; neither are the phenomena at all times to be explained, on the ground of a constitution predisposed from debilitating and irritating causes to be acted upon by the external injury. Mr Copland Hutchinson says, in his letter to Dr Butter,

" I cannot adduce any facts bearing upon the question of poison, and therefore can give no decided opinion upon it; but I should think that the absorption of a morbific substance was totally out of the question."

We may therefore infer, that this ingenious and respectable

practitioner favours the opinion, that a morbid susceptibility of the system is the real source of the disturbance that ensues. Such, indeed, appears to have been the case with Dr Bell, whose mental and bodily energies were previously impaired by anxiety and fatigue; and Dr Anthony Todd Thomson of London, who had nearly fallen a victim to an accident of this kind in the course of last year, states, in recording the circumstances of his attack, that he had previously suffered from fatigue of body and mind. There can be no doubt that, in the cases of anatomical students, some of whom almost annually perish from wounds received in dissection, the same predisposition, arising from similar causes, often exists. But we find, on the other hand, that persons in possession of the best health are exposed to these accidents; and that the wounds, too, are sometimes contracted in dissecting recent and healthy subjects.

The consideration of Dr Thomson's own case leads him to the conclusion,

1. That a virus is generated which produces irritative fever;
2. That a predisposition of the body is necessary for its action;
3. That the nervous energy is diminished by the absorption of a virus, generated in the wounded part; that the heart's action is nearly destroyed by it; and that congestions, sometimes fatal, are produced in the vascular trunks *.

Mr Dryden, who opened the bodies of several of the patients, whose cases he has described, confesses that

"He often suffered from irritation of the skin over the hands, so much that '*black heads*' formed both on his arms and hands. In the course of one night, blisters would arise after opening a body, and contain a bloody or grumous sanies, which being discharged, would be followed by a thickening and livid colour of the skin.' —P. 123.

This gentleman subsequently suffered severely from a carbuncle which appeared over the carpal extremity of the left radius, and he was reduced by the attack to a state of great debility and depression of spirits.

We apprehend that, in here closing our remarks on this part of Dr Butter's volume, we shall consult the satisfaction of our readers by presenting to them, without abridgment, letters on this subject, as well as on irritative fever in general, with which the author was favoured by two justly celebrated men,—Sir Astley Cooper and Mr Abernethy,—whose talents, experience, and opportunities of observation, are, we need not say, inferior to those of none of their contemporaries.

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* Vide London Medical Repository for April 1825.

" Dear Sir, *Spring Gardens, London, March* 2. 1825.

" In answer to your inquiries, I have to observe,

" 1st, That I have given anatomical demonstrations since 1785, and anatomical lectures since 1791.

" 2d, I have frequently seen irritative fever produced by slight wounds in dissection.

" 3d, I am of opinion that such irritative fever generally arises independent of absorption of morbific matter; but I have seen *two instances* to the contrary.

" 4th, Death has sometimes ensued from these injuries, when the local injury has been apparently very slight.

" 5th, I have only once severely suffered from a wound in dissection, and then it was the result of an injury upon my thumb, in dissecting a person who had been executed the day before. The symptoms were,—pain in the injured part, swelling, inflamed absorbent glands in the axilla, irritative fever, a continued sore throat, an inflammation, first in my left, and after a few days in my right knee. Medical means relieved, but did not cure me, but I recovered by going into the country.

" My plan of preventing irritation has been, to put the point of a lancet into the puncture, to make it an incised wound, and to touch the part with argentum nitratum, to destroy the vitality of the wounded surface. The *general* treatment of irritation consists in restoring the secretions, by giving hydr. subm. cum opio, et pulv. antimon.; the liquor ammoniæ acetatis cum magnes. sulphat.: the *local*, in applying fomentations and poultices. Gravitation of the blood into the part is to be prevented by attention to posture; rest is required; abstinence from all stimulants is necessary, as they do harm.

" 7th, Local bloodletting is highly useful. From twenty to thirty leeches should be applied upon the limb, if the symptoms are severe.

" 8th, I have repeatedly known some persons die; but others have had violent symptoms, and have recovered from punctures made by needles, forks, broken shells or bones, scissors, pen-knives, and skewers. I am yours truly,

" To Dr Butter, Plymouth." Astley Cooper."

" Dear Sir, *Bedford Row, London, 2d April* 1825.

" I have known numerous cases of mechanical injuries causing very severe disturbance of the system, and even death, in consequence of the morbid predispositions of the party affected.

" Even pricks from clean sewing needles have occasioned peculiar inflammation of the absorbing vessels, and consequent violent febrile action, and nervous irritation.

" I remember a young lady, residing in the house of a medical man, who, some days after having pricked her finger, had irritation commencing in the wounded part, transmitted along the absorbents to the axilla, which was accompanied with great acceleration of the pulse, alienation of mind, and convulsions, so that her

life was despaired of. The pulp of bread poultice was applied to the inflamed parts, the bowels were cleaned, and kept gently lax. Alterative doses of calomel and blue pill, effervescing saline draughts, and infus. menth. sulphuric. were the only medicines employed. The inflammation and general disturbance subsided, and, in a week, the patient seemed to be well; but three days afterwards, the bowels becoming disordered, inflammation in the absorbents recurred, and the constitution was again disturbed in the same manner, although in a less degree. This second attack was soon tranquillized by the same measures which had been adopted on the former occasion.

" I have no doubt that general irritability is the predisponent cause of inflammation in the absorbent vessels, and that it gives a character to the inflammation that takes place.

" That the inflammation induced is of a peculiar character, and excites a corresponding disturbance of the system in general, may be inferred from our often meeting with cases of inflammation of the absorbing vessels and their glands, in which the general health is not affected in the same manner as in those peculiar cases.

" That the inflammation induced in these cases of the kind which I term irritative, and capable of exciting the same disease in contiguous parts, is observable in various instances.

" I knew a gentleman, who, having grazed his heel, irritated the tender surface by travelling all night in his boots, and produced inflammation and sloughing of the injured parts, with inflammation of the absorbents on the back of the leg as high as the ham, and on the groin, causing also swelling and tenderness of the inguinal glands. Large patches of mortification took place on the inflamed skin on the back of the leg, and on the inner part of it, extending even above the knee, and the patient died.

" This young man was disordered in the stomach and bowels before he undertook the journey; and afterwards, when the inflammation occurred, had violent fever, restlessness, wandering, delirium, and subsultus of the muscles.

" I have also known several cases of slight mechanical injuries, such as I am convinced would not have produced the same effects in other persons, occasioning suppuration, ulceration, sloughing, and abscesses, in contiguous parts, attended with great disturbance of the functions of the sanguiferous and nervous systems, and of the chylopoëtic viscera.

" With respect to the wounds made in dissection, we are warranted to suppose, that the matter applied is stimulating, because it often produces fretful sores, and because we know that the absorption of animal matter in a state of putrefaction produces a most pestilential fever. Yet very rarely do we find that the matter applied acts as a morbific poison, contaminating the system, and inducing remote morbid affections, as it does in the cases of transplantation of teeth, sucking of children, &c.

" Therefore, I am led to conclude, that the effects of these wounds also very much depend upon the morbid predispositions of the party affected.

" I do not think there is reason to believe, in general, that the

animal matter which may be on the instrument inflicting the wound, acts as a morbific poison.

" Though I have had inflammation of the absorbents, shivering, and fever, perhaps a hundred times, I never had this peculiar disease, locally or generally, but once. Yet I think there is reason to believe, that putrid matter produces a more than ordinary degree of fever in such cases. I have seen numbers of instances, in which the local irritation, occasioned by the wound, affected the sinewy parts of the finger; and numbers where these were unaffected, and the disease seemed only to extend through the medium of the nerves and absorbents. When much nervous irritation and febrile affection is induced, it increases all the morbid propensities of the system, and rouses into a state of activity dormant local affections, which reacting upon the health in general, aggravate the malady.

" Thus, I have known persons die after such illness, apparently from affections of the bowels, brain and lungs.

" With respect to bloodletting, I may add, that I do not think we are warranted to bleed in cases of irritative inflammation and fever, because these maladies are indicative of weakness, and likely to induce as a consequence a greatly augmented debility.

" I have thus, my dear Sir, put together what, I believe, I told you before, and what I have been accustomed to say on these subjects in my lectures.

" I have endeavoured to be brief, and perhaps it may be thought '*brevis esse laboro obscurus fio.*' I am, dear Sir, yours very sincerely, JOHN ABERNETHY."

" Dr Butter."

Of the fourteen mechanics whose cases are recorded, the four last enumerated in the Table died under the care of private practitioners, as they were supposed to labour under common inflammatory fever, the influence of the local injuries being at the time unsuspected. Gangrene took place in each of these persons either previous to or immediately after death. The bodies underwent rapid decomposition, and very offensive gases were disengaged during the process. The patients were all bled from the arm, and subjected to the ordinary antiphlogistic treatment.

The other ten cases are detailed at greater length, and to each of them the author has appended a commentary. It is not in our power to follow him through the whole range of his speculations, but we propose to extract one or two of the cases for the information of our readers. We may premise, that, in almost all of them, the disease assumed an erysipelatous character. We are likewise informed, that some instances of erysipelas were, about the same time, observed in the neighbourhood, beyond the boundaries of the Dock-yard; and that the inhabitants of Plymouth and Davenport (it is not stated upon what grounds) are " physically and geographically" subject to invasions of that disease.

" The life of the labouring mechanics in the Dock-yard," the author says, " consists in their daily work from 6 o'clock A. M. to 6 P. M. in summer; and from day-light until dark, in winter. They take their meals at eight, twelve, and seven o'clock, and live temperately."—P. 123.

" They eat the poorer sorts of fish, animal food sparingly, and vegetables *ad sufficiendum.* Many of them also live in confined situations."—P. 195.

We extract the case of Henwood, as one in many respects of an interesting character.

" John Henwood, æt. 50 (45 in the table), house-carpenter, working as a sawyer, and residing at Millbrook, dark complexion, robust, and healthy.

" On the 4th of August 1824, received a slightly lacerated wound on his right hand by a saw. Cataplasms applied. Cathartic pills and cathartic mixture taken immediately.

" 5*th.*—Easy.

" 6*th.*—Reported unable to attend the surgery, and, on being visited, was found labouring under considerable fever. Pulse about 120, strong and incompressible; severe headache and thirst. The whole hand much inflamed. Blooded to 34 ounces; cathartic pills given, and compound powder of jalap (Ph. Ed.)

" 7*th,* 8*th,* and 9*th.*—Fever abated, cataplasms continued, and fomentations ordered.

" 10*th.*—Continues better, but the whole arm is much inflamed, and erysipelatous; an obscure fluctuation was perceived on the back of the hand, from which, on being opened, pus could be pressed out as from a sponge. Calomel, opium, and antimonial powder, given with confection in boluses.

" 11*th.*—The tumefaction of the hand much reduced. Anodyne bolus continued, and fomentations of poppy-heads and chamomile flowers.

" 12*th.*—The wound on the hand discharging freely pus and membranous sloughs. The arm very painful; pulse rapid but soft; tongue clean and moist. Cataplasms, fomentations, and boluses continued.

" 13*th.*—Made an opening on the fore-arm, which discharged a quantity of pus and sloughing matter.

" 14*th.*—Medicines continued.

" 15*th.*—Made another opening on the back and inferior part of the humerus, which discharged about eight ounces of pus.

" 16*th.*—The pain and tumefaction of the arm much reduced; the discharge very free, with quantities of sloughy matter. Bark given, with diluted sulphuric acid.

" 17*th.*—Fever much abated; supported the arm with a bandage, leaving the apertures clear, to which poultices were continued. Wine given; bark, &c. repeated.

" 18*th.*—Better. Matter could be pressed along the humerus, from behind the scapula. The axillary glands not affected. Cathartic mixture taken occasionally.

" 19*th* and 20*th.*—Improving.

" 26*th.*—The hand and fore-arm nearly sound, and the discharge from the humerus much lessened; complains of pain in his left leg and thigh, which are edematous, but not discoloured.

" *September* 1.—The left thigh very painful; body much emaciated; fever increased. Bark omitted; anodyne bolus given at night, and cathartic mixture occasionally; fomentations and soap liniment ordered.

" 3*d.*—Symptoms as above; pulse about 130, and weak; tongue moist; no appetite. Fomentations continued.

" 7*th* to 10*th.*—Fluctuation of matter became gradually perceptible in different parts of the left thigh, to which cataplasms were applied. His strength was much exhausted.

" 12*th.*—The propriety of opening the limb doubted, from his excessive debility.

" 15*th.*—By Dr Bell's consent, an incision was made a little above the patella, and another on the posterior part of the thigh, from which was discharged an immense quantity of well-formed pus; he bore the operation well. Wine and opium continued.

" 16*th.*—Discharge very profuse; the tension and pain of the limb much relieved.

" 18*th.*—Feels more comfortable, but evidently loses ground. Medicines, &c. repeated.

" 20*th.*—A slough formed on the lower part of the sacrum, and excoriations in several places over the spine. Cataplasms of yeast were applied.

" 25*th.*—A large slough separating from the back part of the thigh. Bark, wine and opium continued.

" *October* 2.—Debility so great that it is with much difficulty he can be moved to apply the dressing; gangrene commencing on the right heel. He lingered until the 11th, when he sank one of the most miserable objects ever beheld. Body not examined."—P. 9.

It is certainly a curious circumstance that so slight an injury as that inflicted in the case of Henwood, should have given rise to a train of symptoms so formidable and so fatal in a person apparently in the most perfect health; and the goodness of whose constitution, Dr Butter remarks, is proved " by his physical powers withstanding the violent siege made by disease on his right hand and arm, and by his contending against a renewed and more desperate series of morbific action on his left thigh and leg, for so long a time;" p. 11. Nor is the cause of the disease less remarkable, which, " commencing on the right hand, going up that arm to the shoulder, crossing over the viscera, without attacking them, to the opposite side of the body, running down the left thigh and leg, formed matter in them, and produced also gangrene on the right heel."

We may observe generally, concerning the treatment of the cases, that, in addition to the topical applications, antiphlogistic measures were had recourse to in the commencement, and that tonics and cordials were exhibited towards the decline of the

disease. It appears that "*two* out of the *three* patients who recovered were *not* blooded, and that *twelve* died out of *thirteen* who lost blood."—P. 248.

It has already been stated, that one only of the patients (Reeves) was under the immediate care of the author; and, as the practice in this case, independently of the non-employment of bloodletting, varied in some respects from that pursued in the others, and was successful in its remedy, we shall extract the history at length.

"William Reeves, æt. 44, labourer, a tall and healthy man, temperate and regular in his habits, residing in Trafalgar Court, Dockwall, Devonport.

"On the 9th of October last, he slipped from a piece of English oak timber in the Dock-yard, and slightly grazed the skin over the tibialis anticus muscle and shin-bone of his left leg: the wound was considered too trifling to lay him up from his duty; he therefore continued at his work, but applied daily at the surgery for dressings, until Monday the 25th October, when the ulcer was thought to be sound.

"On the 1st of November (Monday), he re-applied at the surgery with the same ulcer, about the size of a split pea, surrounded by inflammation, having been on the Dock-yard watch during the whole of the preceding night, when he felt pricking and painful sensations in his leg, accompanied with symptoms of approaching indisposition. Light dressings and poultices were applied, and some opening medicines given in the evening. During the night he became very hot and feverish, and perspired freely, owing to some warm herb tea which he had drank for that purpose.

"2*d* (Tuesday).—He still returned to his duty; but, towards night, the leg became so very painful that he had some difficulty in getting home. Poultices were continued.

"3*d* (Wednesday).—On this day he was prevented attending the surgery, or even from leaving his room, by an erysipelatous redness, which occupied the inner side of his left leg, and created such agonizing pain and tenderness, that he had not only been deprived of rest during the preceding night, but of the power almost of standing on it. The absorbent vessels were inflamed along the inner part of the knee and thigh to the groin, where the glands were enlarged, and exquisitely painful to the touch. The ulcer still kept clean and granulating. Pulse 90; bowels open; tongue clean and moist, although languor and nausea prevailed. The topical applications were continued, and purging pills then ordered, with a cathartic powder in the morning.

"4*th* (Thursday).—Mr Dryden had the kindness to send for me, saying that this case looked suspicious, and requesting my attendance. I found Reeves at first so extremely irritable, that our common questions annoyed him; but he at last fully assented to the treatment proposed.

"On being asked what those red lines and knobs were on his thigh and groin, he emphatically replied, that "the *anguish of his leg had caused them.*"

" A dull and unequal redness, not unlike deeply stained mahogany, now extended itself around the small part of his left leg, from the inner ankle to the calf. The redness was peculiarly mottled, not unlike Erythema papulatum, figured in Willan (Plate 31.), without vesications.

" The absorbent vessels emerging from the reddened patch, were traced, by their vivid colour up the thigh, and their valves were easily discerned by their knotty appearance.

" The ulcer still looked fresh and healing. Agonizing pain prevailed, particularly on the inflamed parts of the limb, and increased by the slightest pressure. The skin was very tense and hot on the affected leg. He had evidently suffered from considerable fever, as well as from local pain, during the night, and awoke with headache. Pulse 100, and full; bowels freely opened; tongue moist, but a little coated at its base.

" An incision was immediately made by Mr Dryden through the inflamed skin and subjacent parts, down to the fascia, exceeding five inches in length, between the tibia and tendo Achillis, beginning a little above the inner ankle, and carrying it upwards, in the direction of the limb. During the operation, Reeves suffered acutely, but more particularly from handling than from cutting the diseased skin. The divided edges gaped widely, and looked like sliced bacon or brawn. The epidermis, rete mucosum, and cutis vera, were thicker, denser, and redder than natural. The cellular substance was distended, and considerably raised above the muscles, by a yellowish, gelatinous, and semifluid substance, intermixed here and there with dots of pus, and whitish shreds of slough. Three processes appeared to be going on at the same time, viz. the adhesive, the suppurative, and the sloughing.

" Several vessels bled freely for a time, and ceased spontaneously. The blood was dark-coloured, though arterial in part. Some lint, sopped in the rectified oil of turpentine, was inserted in the wound, which was well covered with a poultice of oatmeal, first boiled in water, and then worked into a proper consistence of yeast.

" The operation was performed about noon; and at *four o'clock* P. M. his leg had become easier. Pulse dropped to 90; bowels freely moved; headache gone. He was ordered fomentations to the wound on changing the poultices, which were renewed at every fourth or sixth hour. He then commenced the following mixture:

℞ Cinchon. lanc. cont. ℥iss.
Aquæ cinnamom. ℥xvj.
Spir. ammon. aromat. ℥iv.
Fiat mistura, cujus cap. cyathum parvum omni 2da vel 3tia hora.

" 5*th*.—His general appearance and feelings were much improved, although his night had been rendered somewhat restless by the smarting occasioned in his wound from the rectified oil, Pulse 85, and soft; skin moist; tongue a little coated; bowels open. The wounds looked very sloughy, and the edges had receded widely from each other; but the cutaneous redness had become more pallid, although it had spread a little over the calf. The absorbents had lost their

colour, but the inguinal glands remained enlarged, and tender to the touch. Balsam of copaiba was substituted for turpentine on this day; the fomentations and poultices were continued. He took ten grains of calomel, and, after two hours, some purging mixture, omitting the bark, which agreed very well with him, for a few hours, of course during the operation of the purgatives.

" *Eight o'clock* P. M.—The purging mixture was repeated at four o'clock, when Mr Dryden again saw him, as the former dose had not acted. Bowels now freely opened; pulse 80; skin moist.

" Rep. mist. cinchon.

" 6*th.*—He continued the bark at the periods stated, during the night when he was awake, and enjoyed some comfortable and refreshing sleep. Leg quite easy. The enlarged glands are subsiding, and the tenderness of the limb passing off; the ulcer discharges freely both pus and sloughs, and the surrounding redness is vanishing.

" Pergat in usu misturæ cinchonæ.

" He was allowed porter, and cold brandy and water, as beverages, and some animal food in the form of broiled chops.

" 7*th.*—The discharge from the wound is free, the sloughs fast separating, and granulations beginning to sprout forth. He has not a bad symptom. The treatment continued.

" 8*th.*—Granulations more apparent to-day; the injected cellular tissue is fast losing its bloated appearance, and the redness quitting the skin. His appetite is keen, his countenance animated, and his skin moist. Pulse 80, and regular; in short, his amendment is progressive.

" Continuetur.

" 9*th and* 10*th.*—Began to dislike the bark, of which he had taken a considerable quantity. He was ordered still to repeat a dose twice or thrice a-day.

" 15*th.*—The artificial ulcer now perfectly clean, and filled with healthy granulations, all the sloughs being cast off. The old ulcer has been healed for a day or two. His health and strength have returned with the improving aspect of the sore. On this day, the poultices, &c. were left off, and some mild ointment, with a bandage, was substituted. He now omitted all medicines, and trusted to diet.

" 18*th.*—Ulcer dressed with sticking plaster and bandages.

" 20*th.*—Sore fast contracting.

" 25*th.*—Nearly cicatrized. He walked out for the first time.

" *Dec.* 5.—Reeves called at my house in Plymouth perfectly recovered."—P. 107.

It seems to us highly probable, that had general bloodletting and active depletion been employed in this case, the patient would have sunk under the disease; and we are strongly inclined to ascribe his recovery to an opposite and more judicious mode of treatment.

The author, who seems to be very much of the same opinion, remarks:

" The treatment resorted to, it must be admitted, was most decisive, and calculated to do either much good or much harm.

" A long and deep incision, followed by a free use of bark, ammonia, and other stimuli, ought to effect some obvious and salutary changes, either in a healthy or diseased man. Had this treatment been favourable to the march of the disease, its route must have been accelerated to a fatal termination. But, No! What did it? Why, it put an immediate check to every morbid feeling. There was no material advancement afterwards. The agonizing pain in the leg began henceforth to cease, the erysipelatous redness to disappear from the absorbents, and the glandular enlargements to subside. The pulse lessened its frequency,—the fever diminished,—the irritability was soon converted into tranquillity and gratefulness,—the appetite returned, and comfortable sleep was restored."—P. 111.

The practice of making an incision in cases of erysipelas phlegmonodes, is strongly recommended by Mr Copland Hutchinson in the 5th volume of the Medical and Chirurgical Transactions; and, in his communication to Dr Butter already referred to, he says,

" After ten years' experience, since the publication of my remarks, I cannot furnish any additional instructions for the treatment of erysipelas phlegmonodes, besides incision, which, I am convinced, is the best practice in this formidable disease, both as regards my own experience, and that of every other surgeon who has pursued it."—P. 233.

Dr Butter alludes to an analogous practice, which obtains among shepherds,—

" for a disease called the '*Udder su,*' which occurs in sheep. During the lambing season, erysipelas will sometimes attack the ewe's udder, quickly running up the flank, and terminate in gangrene, if it be not observed. The well-known practice is to make deep incisions into the mamma, and apply oil of turpentine,—a practice which almost always saves the life of the animal."—P. 113. note.

The supposed causes of the destructive malady which prevailed at Plymouth, are treated at considerable length; and among them are enumerated Teak woods,—mineral tar,—the dressings applied to the sores of the patients,—the roofs or awnings which furnish a covering to the ships while building, and to the artificers employed in their construction,—and the atmospheric air.

Dr Butter is disposed, after due consideration, to acquit all of these suspected agents, except the last mentioned, of any share in the mischief.

It seems, indeed, by no means improbable, that some occult, and, in the present state of our knowledge, inexplicable condition of the atmosphere, aided perhaps by noxious exhalations from the earth, during a hot and sultry season, formed the predisposing cause of the disease.

The respective questions of "constitutional susceptibility," and "morbific poison," attract a large share of the author's attention, and are illustrated by references to, we had almost said dissertations on, the subjects of opium and emetics, bugs and leeches, blisters, eruptions, bougies, hemorrhage, wounds, ulcers, inoculation, tumours, glass, fracture, stone, puerperal fever, psoas abscess, punctures, friction, corns, warts, the bite of a rat, and hospital gangrene. For this part of the work we must refer to the treatise itself; and likewise for an ample statement of the reasons which induce Dr Butter to "baptize" the complaint of which he treats Irritative Fever. The terms Erysipelas or Erysipelatous Fever would have satisfied us; but we have not the smallest objection to his nosology.

What we may be allowed to complain of is, that the endless digressions and multifarious topics introduced into the volume, not only swell its bulk to an inconvenient size, which will impede its circulation, but also communicate to it the appearance rather of a medical commonplace book, than that of a methodical and well digested history of an individual disease. The literary execution of the work is such as we cannot commend; and the author, either from carelessness or a love of singularity, is too often betrayed into the use of inelegant, obscure, and inaccurate modes of expression. These faults would be more venial in a writer of less power than Dr Butter evidently possesses; but his publication is not without its redeeming qualities, and we turn gladly from this, the least pleasing part of our duty, to bear willing testimony to the intelligence, candour, and independence of mind which it displays.

ART. XVII.—*Influence de l'Estomac sur la Production de l'Apoplexie.* Par J. K. A. RICHOND, D. M. Chirurgien à l'Hôpital Militaire d'Instruction de Strasbourg, &c. Paris, 8vo, pp. 161.

Influence of the Stomach in producing Apoplexy. By J. K. A. RICHOND, M. D. &c.

THE above is a *brochure* of ten sheets, the object of which is to establish the origin of apoplexy from gastric irritation, or rather from the actual inflammation, of the stomach. The author is, in short, a fiery disciple of Broussais, and his work may be considered as an appendix to the system of the latter. It contains little new, and we chiefly notice it, that such of our readers as wish to see the application of the "*new physiological*

doctrine," as the followers of Broussais affectedly denominate their system, to apoplexy, may know where to meet with a tolerable monography of it, in this pamphlet. The reasoning advanced does not seem to us more conclusive than that generally employed in the above named school. He indeed shews, what has always been known, the great reciprocity of sympathy between the stomach and brain: he quotes abundance of cases, in which the stomach, or intestines, were found, after death, from apoplexy, to be in a state of inflammation; and he urges the probability of this morbid action in the stomach, and its concomitant morbid state in the brain, having existed long previous to the actual appearance of the fit, which he considers a mere development, or *explosion*, of what had long been going forward in the system.

—" After having combated errors still generally admitted, it is time to make known the idea which I have conceived of apoplexy. I consider it as produced by the vehement and rapid exaltation of an irritation (generally chronic) of the brain, of the cerebellum, or the arachnoid membrane; which being developed in a slow, successive, inappreciable manner, has induced alterations more or less extensive; and which becoming suddenly aggravated, explodes, as it were, with violence, and determines the phenomena which are observed in apoplexy."

This is his view of the theory of the disease; and the exciting cause he supposes to be at all times placed in the stomach, as above. But it is not merely by dissections or reasonings upon cases in which apoplexy and gastritis are seen to coincide, that this doctrine is to be rendered universal; *such coincidences must be shewn* to be general, *and an explanation must be discovered for the exceptions.* Now, as long as we know that the gastritic cases form only the exceptions, whilst by far the greater number of apoplectic dissections and histories exhibit the stomach in a state of health, we shall be content with thanking Dr Richond for his endeavours to enlighten us, and must beg his excuse for not becoming of the number of proselytes whom he counts upon. " *Ceux-la*," he says, " *n'en doutons pas, finiront par proclamer leur abjuration, et par se placer dans nos rangs.*" —Pref. ii.

The view of the disease which he has taken does not indeed lead to any practical results materially different from those in use. Bloodletting continues as before, except that the *panacea Broussiana* of leeches, is applied over the epigastrium. The bowels should still be opened, though by much gentler means than those formerly employed. Blisters he very properly reprobates; and though the same view has been supported by Baglivi, Tissot, and many others, we think this part of Dr Richond by no means the least deserving of a reading. Emetics

are, of course, no favourites. We should have premised that the work is a prize essay, and may, therefore, be supposed to contain most of the arguments in favour of the gastro-phlogistic origin of apoplexy. The following "*Final propositions*" will afford to the reader a very correct notion of the tenor of the whole argument.

"FINAL PROPOSITIONS," p. 160.

"The stomach exerts a powerful influence upon the brain; the close union which they present is indispensable to the performance of the functions proper to the brain.

"It announces its wants by sensations of hunger and thirst; the former announces the wants of excitement, the latter results from it.

"Besides the functions of nutrition, the stomach maintains the brain in a *tone* favourable to its action: it is the balance of life.

"In the state of disease, the stomach causes the brain to participate in its sufferings; and this participation gives rise to the evolution of *appreciable phenomena,* which, oftener than is suspected, excite organic disease.

"Thus, in chronic irritation of the stomach, there almost always exists *alterations* in the encephalon or its envelopes, which, by vehement aggravation, may give place to mania, epilepsy, and sometimes to apoplexy. Sanguineous effusion may sometimes be the result of it; *but its existence is accidental,* and forms not the essence of the disease.

"When the hemorrhage takes place, it is at the point where the irritation predominates; because the vessels of that part, being gorged with blood which flows thither, are dilated, softened, and are by age more disposed to rupture. If a partial softening of the brain exist, the blood may be effused into that point, and produce those cavernous appearances which have been improperly ascribed to the hemorrhage alone.

"The treatment of apoplexy ought to be entirely antiphlogistic, for the disease is an *irritation.*

"Emetics, purgatives, vesicatories, are, in the greater number of cases, injurious. When they succeed, it is by revulsion," &c.

In fine, we suspect the new school has adopted the appellation of "Physiological" by the rule of contrast, or what grammarians call *antiphrasis:* for, of all the aspirants to novelty in the healing art, theirs is the sect which calls least *sound* physiology to its aid; and the loose, rambling manner in which they employ, what are still mere conjectures in that science, does not allow unprejudiced observers to anticipate much improvement to medicine from this coalition.

ART. XVIII.—*Beobachtungen zur Anatomie, Physiologie, Pathologie gehorig.* Von A. W. 'OTTO, M. D. Direcktor des Konigl. Mus. zu Breslau, &c. 4to, pp. 200. Berlin, 1824.

Pathological, Physiological, and Anatomical Observations. By Dr OTTO, Professor and Director of the Royal Museum at Breslau. 4to, pp. 200. Berlin 1824.

THE above work is one of those ephemeral collections of observations, which, from their unpretending form, may fairly defy criticism. They often furnish us with an abundance of new facts; but, so long as they go no farther, our office is merely to extract from them, with a grateful acknowledgment, the additions which they have made to human knowledge. Of this kind are the following abridgments from Dr Otto's book.

1.—*Singular Variety of Suicide.*

A butcher, oppressed with disease and low spirits, had detected an excess of familiarity between his wife and his partner. He resolved on suicide, and ran his head against the wall, in the presence of several persons; but this proving ineffectual, he resolved at last to put himself to death, by repeated strokes of his butcher's axe upon his skull; and at last succeeded, sinking from loss of blood as much as from the injury done to the parts within. It appeared, after death, that he had hit the cranium chiefly with one of the corners of the axe, and that this had alighted many times upon one place, making a large hole into the hollow of the cranium; but that the weapon had made at least 100 blows upon the cranium (which were still visible upon the prepared bones), before death had taken place.

We mention this, chiefly because a case of this kind, occurring under other circumstances, might have implicated innocent persons in an accusation of murder. It is but lately that the story of a man, similarly mangled, was recorded in the British prints; and we believe the general impression was, that his death could have originated in no other way than from wilful murder. How frightfully intense must have been the resolution, how inexhaustible the muscular power, of this Silesian suicide!

2. *Bones containing Metallic Mercury.*

These were found in two subjects, both young. In the first, the ribs, the ossa ilium, the upper and lower bones of the leg, exhibited this appearance upon being struck; and, at present, several years after, mercury can still be shaken from them in the

same way. The metallic mercury flowed out upon the dissecting tables, macerating tubs, and other apparatus employed by Professor Otto, and his friend Dr Guret, whilst in the act of cleaning the bones. A piece, taken from the middle of one of the bones was analyzed, at the request of our author, by Professor Fisher, and demonstrated evidently the presence of mercury. Infine, Dr Otto has published these two singular facts, as affording "the most undeniable evidence of what is so generally doubted, the power of the living system to reduce the oxides of mercury, and the actual appearance of the latter, so reduced, in the bones."

3.—*Case of Hydatids in the Cavities of the Heart.* With an Engraving.

G. E. a soldier, 35 years of age, died in the Hospital of Silesia, of a disease of the testicle. On dissection, the appearance, magnitude, and structure of the heart was almost natural; but its right cavity contained a very great number of hydatids, which were fixed to the eustachian valve, by seven visible, but slender filaments; one of which, however, appeared more ligamentous than the rest. The valve itself was thickened, enlarged, and rigid; the filaments by which the hydatids were suspended, were partly inserted into the free edge of the valve, partly upon the posterior edge of the aperture of the *cava inferior*, from whence proceeded the group of hydatids, fully $1\frac{1}{2}$ inches long, into the opening of the right ventricle; so that the orifice could never have been completely shut during contraction. The number amounted to 70 or 80, some of them as large as a garden pea; others as small as millet, but all confined to the situation described.

4.—*Medullary Sarcoma of the Ovarium, in a Girl of Twelve years of age.* P. 142.

This tumour measured 9 inches in length, 4 broad, and 4 thick. It was the left ovary, white, soft, mamillated, with intersections of cellular membrane. The right ovary was sound, and undeveloped, corresponding to that early age; the right fallopian tube natural; but that of the left side, though void of adhesion, or any particular disorganization, was considerably enlarged and firm, with its canal open, and much more vascular than the tube of the right side. The girl had complained about nine months, during which the ascent of the tumour from the pelvis towards the epigastrium could be distinctly perceived. It was movable, free from pain, and seemed at last to terminate life by dropsy and hectic. An organic disease of this part, commencing at so early an age, and proceeding so rapidly to a fatal termination, is a case of singular interest. The girl was scrofu-

lous; and she attributed the origin of her complaint to a strain received while lifting water. But Professor Otto states, that she was suspected of frequent indulgence of a premature sexual impulse with a boy; and, as the inspection of the parts entirely confirmed this suspicion after death, he thinks the malady may have, in part at least, derived its origin from this cause. But, granting all the influence of this precocious excitement, it appears to us impossible to understand why the tube and ovary of the *one side only* were affected, the uterus remaining meanwhile undeveloped.

5.—*A Male Hermaphrodite that had served* in loco uxoris, *in three marriages; with Engravings of the Parts*, p. 123.

Kaluza, a boor of Upper Silesia, entered, at the proper tribunal, an action of divorce against his wife, whom he represented as affected with an incurable and disgusting disease of the genital organs, by which, in the connubial act, his own parts were subjected to strangulation, pain, and excoriation. The physician ordered by the court to make the due examination of both parties, found indeed an anomalous structure in the female; but the husband, considerably advanced in life, also appeared to labour under a natural phimosis, and along the margin of the prepuce, exhibited many indurated places, apparently cicatrices. On the whole, the medical man gave it as his opinion, that both the parties were sufficiently qualified for the purposes of marriage, and the case was decided in favour of the wife. The husband however appealed; and demanding examination by a different physician, it was, at length, fully established, that his wife was a man. She was sent to Breslau, and examined there by the Royal Medical College of Silesia, and the following was the result of their investigation.

The wife was 35 years of age, 5 feet 4 inches in Silesian measure (about 5 feet English), strong, muscular, and meagre; had a thin, soft beard; breasts, face, form of thorax, pelvis, and limbs exactly resembling those of a man; the hands and arms strong, torose, and unrounded;—the private parts exhibited what represented the penis $1\frac{1}{2}$ inches in length, and half an inch in breadth; furnished with a glans one-third of an inch in diameter, and covered by a movable prepuce. It was imperforated; but exhibited distinctly the split urethra, through the whole length of its inferior aspect. *(See the drawing to Dr Gairdner's Case in our last Number.)* The scrotum was, in like manner, split into two parts, and formed two oblong eminences, following the direction, and emulating the form of *labia externa;* and were covered externally with abundance of very strong hair; whilst within they were lined with a fine mucous membrane. The right half of the scrotum projected more than

the left; and evidently contained a testicle, about the size of that of a boy of ten years of age; the left testicle lay likewise without the abdominal cavity, but was softer and smaller than the right;—from both a spermatic cord could be traced distinctly to the external abdominal ring. Between these two *scrota*, thus imitating the *labia externa*, and containing each a testicle, was found a red fissure or aperture, covered with a vascular mucous membrane, which, in the posterior aspect, three-fourths of an inch anterior to the anus, was bounded by a distinct frænulum, and proceeded upwards $1\frac{1}{2}$ inches high into the pelvis, where it ended, in the form of a funnel at the round orifice of the urethra, which was there seen to open into it. This vaginal aperture was bounded above and before by the penis,—was large enough to receive the glans of the husband,—and, in fact, had long served for this purpose. A hard mass could be felt at the opening of the urethra into the bottom of this funnel, which was probably the prostate gland; and more upwards and outwards, nearly in the natural region of the bulb of the urethra, lay the split urethra above mentioned, with a row of three pretty large openings, out of which, by pressure and irritation of the genital organs, several drops of a clear mucous fluid were observed to flow. Professor Otto considers these openings as the extremities of the ducts of the prostate gland, of Cowper's gland, and the spermatic cord.

With these appearances, the evidence of the husband entirely agreed *. The woman also confessed that she derived enjoyment from the ejaculation of a fluid,—had never menstruated, and could not be brought to confess any predilection for either sex. Of course she was pronounced to be an irregularly formed male.

This person had lived ten years harmoniously in the state of marriage with different husbands; and the whole history throws great light upon the nature of hermaphrodism. May it not also explain that wonderful story of Mr Pott, who is said to have masculated a female, by extracting from her groin two tumours, which afterwards were discovered to be ovaries? The woman he operated on may have deceived him in what regards menstruation, as she probably did respecting the pain of the inguinal tumor. (Pott's Works, vol. iii. p. 330.) We merely throw out this hint for the use of those who may, like us, find difficulty in explaining a fact not borne out by the daily results of castration on the females of inferior animals.

Upon taking leave of Professor Otto, we would express our wish, that the conservators of the numerous and valuable ana-

* Ingressum enim ipsi nunquam uxor permisit, donec genitale fricando, humorem aliquem in hominem ejecisset; quo facto, subita voce nunc accedere ei licere, exclamaret.

tomical collections of our own country would favour the public occasionally with such another commodious account of their more remarkable cases and preparations as the present. So completely are all the members of the profession kept in the dark as to this point at present, that many rare specimens of disease and monstrosity are left neglected, solely because the practitioner, to whom they occur, has no means of knowing whether a more instructive specimen may not already exist in some public museum. We are confident that of such instructive varieties of nature, a register, carefully preserved, in an accessible form, would much promote the knowledge of medicine in this country, and soon obliterate the necessity of our youth running a tour through the more accessible collections of foreigners.

ART. XIX.—*De Abusu Hydrargyri, Prolusio annuntians Scholas Clinicas de morbo Syphilitico autumnali et hyberno tempore habendas.* A Professore J. C. Wendt, M. D. Medico primario Nosocomii Communis Metropoleos, Equite aurato, &c. Havniae 1823.

On the Abuse of Mercury in Syphilitic Diseases. By Professor Wendt. 4to. Copenhagen 1823.

WE merely notice this spirited little condensation of the many wailings and lamentations which have been sent forth from the different corners of Europe against the use of this "pernicious mineral" as a geographical curiosity. The ideas are purely an echo of the sentiments respecting the improper use of mercury, which have received so much light, and so much exaggeration, from the labours of our countrymen within the last ten years. It is curious and instructive to observe their echo continued in the "distant isles of Scandinavia," and satisfactory to the philanthropist to foresee, in the authority and decision of the present author, a rapid extinction of that indiscriminate routine, which, till lately, prescribed mercury upon the least mention of the name of syphilis, and continued its operation, when the only effects that could follow were of the most ruinous description. *Graviora morbis patimur remedia*, is Dr Wendt's motto; and it appears from his observations, that, in Denmark, where the healing art is cultivated with much assiduity, this complaint was at least as well grounded as amongst ourselves.

"Horresco referens, quam saepe viderim supinam negligentiam, idque *nostro coelo* et sub plaga *septentrionali*, nullo discrimine servato praescribendi aegrotis qui morbis syphiliticis laborant, mercuria-

lium usum : et obstupui, ardorem videns ac intensissimam curam, ut aegroti *oxydo hoc metallico se ingurgitent, insignem quantitatem deglutiant,* tam *intus,* quam *extus,* totum corpus *mercurio largè imbuant.*"—p. 4.

From this unprincipled and ignorant practice, he informs us, that he has himself frequently witnessed the origin of aneurysms of the heart and large vessels ; and that his colleague Professor Thal is, as well as himself, engaged in attending to the means of removing this opprobrium from the medical practice of Denmark. We take leave of our worthy knight of the order of Dannebrog, to whom we are partly attracted by the *naive* elasticity of his manner, which, like that of his countryman Bartholin, and his Swedish neighbour Linnæus, seems proof against the genius of his climate, but chiefly by the internal evidence he affords of the rapid spread of science, and of the facility with which ancient prejudices are now relinquished by leading characters in all parts of the world. He indeed confesses, in a manner the most flattering to our national feelings, the aid which he has derived from the medical authors of our country, whom he carefully classes in the order of their importance thus, Abernethy, Matthias, Rose, Guthrie. Dr Wendt is physician to the *Lock* Hospital of Copenhagen, and relates the following instructive piece of medical history, which we would hope, for the honour of human nature, will for ever remain unique.

" Alter casus, nempe *ulcera venerea primitiva linguae, rarius quidem occurrit.* In hoc nosocomio, in tanta scortorum copia, mihi quoque data est facultas videndi et tractandi haec ulcera et has excoriationes. Coitus impurus illa genuerat, dum quidam nautae, sive Russici sive ab America septentrionali advecti, (id referre nauseam mihi facit), ut ipsi adversus luem veneream in tuto essent, orificium oris horum scortorum ad coitum celebrandum delegerent.

" Quoniam haec prostibula saepe repetitis vicibus usa sunt mercurialibus ad salivationem usque, tum vero si vera causa ignota esset, haec ignorantia facile opinionem gigneret, talia ulcera pro mercurialibus venereis primitivis, haberi. Quae, supra nominata, ulcera sub mea cura occurrerunt, *initio oblonga erant, neque profunda et coloris subflavi densi ; sed intra paucos dies profundiora facta sunt et confluentia, fere per totam linguam se diffuderunt, magis magisque dolorosa, et margines quodammodo lardaceae. Denique etiam in linguae marginibus, praecipue apice, ulcera ejusdem coloris provenerunt, quorum apici linguae incidentia maxime doluerunt.* In arcu palati quoque ulcera similia provenerunt, sed haec non multum se diffuderunt, et magis circumscripta fuerunt. Doloribus increscentibus, tota res in eo vertitur, ut hisce calamitosis foeminis paratissimum levamen parari possit. Confugi ad jusculum avenaceum mucilaginosum, aquae calcis mistum, pro colutorio ; praescripsi linctum mucilaginosum e gummi tragacantha, adjuncta convenienti portioni hydrargyri muriatici mitis.

" Horum remediorum usu et diaeta lactea ambarum aegrotantiam foeminarum conditio non levata solum est, sed brevi post harum utraque convaluit."

Art. XX.—*Traité Clinique et Physiologique de l'Encephalite, et des suites.* Par M. J. Bouillaud, M. D. Ancien Interne des Hospitaux de Paris, &c. &c.

Clinical and Physiological Treatise upon Encephalitis. By M. J. Bouillaud, M. D. 8vo, pp. 350. Paris 1825.

THIS is another production of the *Physiological* school, for Dr Bouillaud is both a phlegmasian and a phrenologist. Indeed, though this is about the first time the combination has occurred to us in a treatise professing to be practical, we confess the union of these two sects seems by no means unnatural; and we were not a little amused at the facility with which Doctor Bouillaud slides down from the dogmas of Broussais to the dogmas of Gall, or the reverse, as best suits his purpose. The same enthusiasm, the same sanguine anticipations of hope, and the same lax interpretations of fact, distinguish both the craniological and phlegmasian systems; and whoever has given up to the one doctrine his right of demanding the kind of evidence, which is accorded in other sciences of mere observation, is in the fair way of embracing the other, or indeed any other creed that offers. In whatever case the act of ready belief is no enjoined or moral duty, it becomes the index of rash, untrained, or deficient intellectual powers; for in science, not less than in the business of human life, "*men are not saved by faith, but by the want of it;*" and when the members of a sect are observed to become clamorous for this species of ignorant assent, we may be quite sure that they possess no more satisfactory means of enforcing that other assent which results from the irresistible deductions of reason. If it be true that nearly all the diseases of the human body arise from gastro-enteric irritation, why not quietly leave the development of this source of causation to the gradual progress of rational pathology and careful dissection? What adequate motive can influence the great mass of medical intellect, contrary to all its worldly interests, to withhold its assent, if the evidence is satisfactory? And, if it is not satisfactory, how unjust and absurd is it to attempt to thrust forcibly an untenable doctrine upon the more unthinking, and consequently less sceptical, part of the public! We should imagine that opinions, which are only to be sustained by unreasonable clamour, arguments *ad hominem*, and visionary anticipations of the future, could hardly be worth the perverse, importunate pains that are daily bestowed upon them.

We have been betrayed into these remarks by the dogmatizing style of our young author. He lays it down as a principle, for example, that every disease originates in organic le-

sion, and pronounces a *woe* against medicine should she ever depart from this very apocryphal proposition! (Pref. vi.) He then proceeds to criticize, in no very measured terms, the valuable pathological epistles of M. Lallemand; and all this in the preface, previously to informing us of the object of his own labours. These are indeed respectable; but they cannot be substituted for the exact and satisfactory information of the work alluded to.

The first part consists of *observations*, that is to say, of a number of cases methodically arranged. The second part only is properly the treatise upon encephalitis.

The cases were chiefly observed in the Hôtel Dieu of Paris, and are subdivided into sections, according to their terminations, *first*, encephalitis with redness, sanguineous injection, turgescence, and slight induration of the cerebral substance; *second*, terminating in softening and suppuration of the cerebral substance, but without the formation of a cyst around the pus; *third*, terminating by encysted abscesses; *fourth*, terminating in the formation of incidental tissues. The latter are generally *albuminous*, *tubercular*, or *steatomatous* tumours, occasionally degenerating into cancer. On the whole, the fifty-three cases delivered in the book, as exemplifying the forms of encephalitis, are judiciously arranged, and, though many of them have been previously published, there are still a sufficient number of new cases to enhance very much the value of the work.

Dr Bouillaud divides the progress of encephalitis into four stages, corresponding to the four classes of morbid phenomena detected by the knife as its consequences, namely, 1. The stage of irritation; 2. The stage of softening, or *ramollissement*; 3. The stage of suppuration, or abscess; 4. The stage of incidental forms. He likewise considers encephalitis as *acute* and *chronic*, *general* and *partial*, with *irritation*, or with *compression*.

The causes of the disease, whether predisposing or exciting, he considers as often obscure; but those that are known he classes as follows: 1. The direct action of mechanical injuries; 2. Irritations transmitted from irritated nerves; 3. Moral affections; 4. Abuse of excitants; 5. The presence of foreign bodies in the encephalon. The predisposing causes are a sanguine or nervous temperament, excessive action of the left ventricle of the heart, *latent chronic phlegmasia* of the brain. It is but justice to our author to testify, that these seem very fairly deducible from the cases he has collected; and that, to our surprise and unspeakable comfort, he has not once, in this section of causes, resorted to the gastro-enteric irritation as giving origin to encephalitis. Indeed, were the various stages of encephalitis above mentioned capable of being traced distinctly *into each*

other, we should be willing to admit our author's entire view of the causes of encephalitis and its consequences as correct; but notwithstanding the ingenious and meritorious labours of Rostan, Lallemand, Léveillé, Cruvellhier, Parent, Martinet, Georget, Rochoux, and other distinguished individuals of the Parisian school, and the able advocation of the subject in the work before us, it is still far from being proved that what our author names the *morbid incidental tissue*, even the hardening or softening of the brain, originate from inflammation alone. In other parts of the system similar degenerations arise; but the history of their origin and progress is buried in the most profound obscurity.

Dr Bouilland has an interesting article upon the modifications of the *symptoms* of encephalitis, according to *the portion of the brain* which it affects. We regret that the diffuse, argumentative tone in which he delivers his observations on this subject, render it impossible to extract them entire. Their substance is as follows.

1. The paralysis of the organs of *speech* depends upon the lesion of the anterior lobes of the brain. "I have collected so great a number of facts upon this proposition, that I regard it as one of the most incontestible truths;" p. 276. "I have never been once deceived in prognosticating from the loss of speech, that, after death, the anterior lobes of the brain would be found impaired;" p. 162.

2. The palsy of the inferior limbs corresponds to the lesion of the middle lobes, and to that of the corpora striata. He quotes Saucerotte, Foville, Pinel, Grandchamp, and Lacrampe-Loustan, as maintaining the same opinion with slight modifications.

3. The paralysis of the upper extremities is the effect of the lesion of the thalami optici, or of the posterior lobes of the brain. Here also Foville, Pinel, Grandchamp, Serres, and Lacrampe-Loustan, are cited as holding the same doctrine.

4. The paralysis of the muscles of the eye does not always accompany that of the muscles of other parts. Clinical observation has hitherto taught Dr Bouilland nothing of the *seat* of these lesions.

5. The above paralyses may be combined, and their seats co-existent or united.

6. Derangements of intellect most frequently take place from lesions of the cortical substance; p. 296.

7. In the first period of irritation, the intellectual, locomotive, and sensitive faculties are observed to be exalted.

8. In the latter period, or that of disorganization and compression, the same faculties are diminished or completely lost.

9. When the encephalitic affection is *general*, all the sensa-

tions,—all the intellectual functions,—all the voluntary and reflected motions,—are simultaneously disturbed.

10. When the affection is *local*, the function over which the diseased portion presides is alone affected. But the *corpus callosum*, *septum lucidum*, and *fornix*, may be affected without any paralysis whatever ensuing.

11. Dr B. repeats from Lallemand the following brief diagnostic characters of *arachnitis*, *apoplexy*, and *encephalitis*. In arachnitis there are *spasmodic symptoms without palsy;* in apoplexy sudden palsy *without spasmodic symptoms;* in cerebral inflammation, *spasmodic symptoms*, *slow and progressive palsy*, *unequal and intermittent progress.*

These are also our author's diagnostics, and his practice consists in bleeding, cold applications to the head, and low diet. Epispastics, in their different forms, he deems useful only in the second or chronic stage; and with these means carefully and seasonably employed, he does not despair of success in a great majority of cases.

The above are the parts in Dr Bouilland's notice, which seemed most likely to interest a British reader; but his style and reasoning are in general of too lax a character to admit of our presenting appropriate extracts. The book, however, with all its faults, is useful to those who would study the obscure affections of the encephalon. We subjoin a table of the relative duration of forty-four cases of encephalitis, confirmed by dissection. P. 345.

Died,—During 1st week,	- - -	9
During 2d do.	- - -	6
During 3d do.	- - -	6
During 4th do.	- - -	2
During 5th do.	- - -	2
After two or more months, or even after one or several years,	- - -	18
	Total,	44

In these cases, however, the encephalitis was generally combined with some other affection.

Art. XXII.—*Histoire des Marais et des Maladies causées par les Emanations des Eaux Stagnantes. Par J. B. Monfalcon, Docteur en Medecine, &c. &c. Paris, A. D.* 1824.

M. Monfalcon specifies in his preface the object of his work, which is not confined to a description of the maladies to which the neighbourhood of Marshes has given rise, but it professes

to give a complete history of the action of marshy emanations upon animal organization, and to call the attention of administration to the means proper to be employed, in order to ameliorate the physical and moral condition of the inhabitants of such soils as are invaded by stagnant waters.

The author, with laudable precision, does not allow the reader to embark in his views of speculation, without previously entering upon the important task of defining; and it is with clearness that he restricts the terms, too vaguely used, of effluvia, miasmata, emanations, and exhalations.

" Stagnant waters," he observes, " disengage particles which are called indifferently by the names of *effluvia, miasmata, emanations,* and *exhalations,* whilst their mode of action sometimes involves organization, sometimes infection, sometimes contagion. These words are far from being synonymous. The term *effluvia* denotes sufficiently well the particles which disengage themselves from places covered by stagnant waters, and it has the advantage of economising an epithet; but it is not found in this acceptation among classical Latin authors. It is a new term, created by Lancisi. But many authors have applied, in the same sense, the expressions *effluvia* and *miasmata;* and hence has arisen a multitude of mistakes, and the impossibility of comprehending their meaning, when they have treated of diseases created by infection, or of those which contagion produces. M. Nacquart, however, has, with good reason, restricted the word *miasmata* to the particles which exhale from the body of a man affected with sickness, reserving for the word *effluvia* the acceptation that I have explained. This distinction is excellent, it has been adopted, and merits to be so.

The word *emanation,* when employed alone, is vague; in order to render its meaning precise, we should unite it to an epithet. Thus, when we speak of *putrid emanations,* we imply the attenuated particles (different from effluvia and miasmata), which are abundantly disengaged from common sewers, cemeteries, privies, stews, powder-manufactories, theatres, and fields of battle: *miasmata,* which are true physiologico-pathological products, have for their source only the human system, or the bodies of living animals, but in a state of disease. Putrid emanations are disengaged by animal substances deprived of life, while miasmatic emanations are the result of a morbid process. This denomination, *marshy emanations,* fixes the mind, and allows no room for error. It is preferable to the too generic term of *exhalations,* by which we imply gaseous fluids and imponderable bodies in circulation through the atmosphere, which may still consist of aqueous, mineral, metallic, or vegetable particles," &c.

The author then defines marshy emanations as follows:

" By *marshy emanations,* I mean particles extremely attenuated, dissolved in the vapour of water, and having the air for a vehicle; they are commonly invisible, but sometimes are perceived immediately above certain marshes, under the form of fog or clouds.

They are often inodorous, but sometimes possess a disagreeable smell; they are nearly always insipid; they are disengaged more or less abundantly in the atmosphere, according to the nature of the stagnant waters, and of the air, as well as according to the state of the temperature."—*Introd. p.* 14, *&c.*

There are various other distinctions which the author makes; but as they are subordinate ones, we may pass them over, and proceed to notice the body of the work.

In giving a history of marshes, and of the diseases caused by the emanations from stagnant water, M. Monfalcon has consulted a great variety of writers; and has given us a tolerable condensed summary of their different researches and views. We are sorry to find, however, that, of a few very excellent papers on the subject that have appeared in different British journals, the author has been ignorant. We wish he had consulted the dissertation of Dr Ferguson (Inspector of the Army Hospitals), which appeared three years ago in the 9th volume of the Transactions of the Royal Society of Edinburgh, entitled, "On the Nature and History of the Marsh Poison," as the perusal of it would, we think, have induced the French author to qualify many of his remarks. Indeed it is impossible for us to consider, to its full extent, the reasoning employed by M. Monfalcon but in connection with the researches of Dr Ferguson. This must be our apology, if we refer more frequently than might be conceived necessary, to a paper so well known to this country at least.

Of marshes, M. Monfalcon observes, that, in medical disquisitions, two kinds are implied. In the first, the waters, which are commonly muddy, are stagnant; and hence their habitual evaporation to a great extent, particularly in warm weather. Marshes, of the second kind, contain a considerable quantity of organic substances, commonly vegetable, but sometimes vegetable and animal, which being decomposed, gives to the emanations of such waters a specific character. Now, regarding this distinction, we wish that the French author had presented us with more illustrations of the generation of the marsh poison from waters of the first kind, that is, where marshy emanations have no specific character imparted to them from the presence of animal and vegetable remains. This had been previously left for Dr Ferguson to do. The intention of his paper was, to shew, that "putrefaction, under any sensible or discoverable form" (whether aqueous, vegetable, or animal), is not essential to the production of pestiferous miasmata. At the same time, he agrees with other authors in attributing the most frequent and destructive fevers incidental to the human race, to the action of a powerful sun, for a sufficient length of time, upon a marshy surface; but he says, that, before this surface can become dele-

terious, the drought must be of such an intensity, that "the marsh must cease to be a marsh, in the common acceptation of the word." In this case, then, he adds, "the sensible putrefaction of water and vegetables must alike be impossible;" indeed, as it is proved, a healthy condition of the soil, in these pestiferous regions, is infallibly regained by the restoration from rains, &c. of the marshy surface, in its utmost vigour of vegetable growth and decay.

We can scarcely forbear quoting some of the striking illustrations which Dr Ferguson has given in confirmation of his views. These refer to the different circumstances and situation in which the British troops were placed, at various times, during the late war.

"The first time," he says, "that I saw endemic fever, under the intermittent and remittent forms, become epidemic in an army, was in the year 1794, when, after a very hot and dry summer, our troops, in the month of August, took up the encampments of Rosendaal and Oosterhoot, in South Holland. The soil, in both places, was a level plain of sand, with perfectly dry surface, where no vegetation existed, or *could* exist, but stinted heath plants. On digging it was universally found to be percolated with water, to within a few inches of the surface: which, so far from being at all putrid, was perfectly potable in all the wells of the camp." In the most unhealthy parts of the same conntry, in the autumn of 1799, which, as well as the preceding summer, was wet and cold, to an almost unexampled degree; so that the whole country was a continuous swamp, nearly flooded with water, dysentery was almost the only serious disease encountered by the troops; remittent fever being nearly unknown, and intermittent occurring very rarely. At Walcheren, in 1810, where the soil is similar, the sufferings of the troops, after a hot and dry summer, are well known.

"In Spain, during the month of May 1809, which was cold and wet, the army remained healthy; but in June, which was remarkably hot and dry, marching through a singularly dry rocky country, of considerable elevation, several of the regiment bivouacking in hilly ravines, which had lately been water-courses, contrary to the advice of officers who had served in the Mediterranean, several of the men were seized with violent remittent fever (the first that had shewn itself in the march) before they could move from the bivouac the next morning; and this portion of the troops exclusively were affected with this disorder for some time. In this instance, the half dried ravine having been the stony bed of a torrent, in which soil never could lie, the very existence of vegetables, and, consequently, of their humid decay or putrefaction, was impossible; and the stagnant pools of water, still left among the rocks by the water-course, and near which these men encamped, were perfectly pure. Yet this situation proved as pestiferous as the bed of a fen. The retreat of the army by the plains of Estremadura, along the course of the Guadiana, took place during such excessive heat, and at a time the country was so arid and dry, for want of rain, that the

Guadiana itself, and all the smaller streams had in fact *ceased to be streams*, and were no more than *lines of detached pools*, in the courses that had formerly been rivers; and there they suffered from remittent fevers (similar to the yellow fever), and of such destructive malignity, that the enemy, and all Europe, believed that the British host was extirpated."

In short, the substance of Dr Ferguson's views amounts to the following:—The marsh poison can never be generated in a current of water, which is perpetually refreshed and renewed. *The evil resides in the half-dried and drying margin of a swamp; and in all surfaces capable of absorption, the only condition of its generation is a paucity of water where water had previous and recently abounded. It is necessary, in short, that water should be absorbed by soil, and should then be exposed to speedy evaporation.*

It is certainly a great omission, that so important a doctrine as the foregoing should have met with no comment in M. Monfalcon's work, particularly as this is an illustration of the least complicated circumstances connected with the generation of the marsh poison. Some doubts, however, may still arise, if the production of *marsh emanations* (to use the French term) be not greatly favoured by the presence of vegetable and animal matter in a state of putridity. This question we shall consider in due course, and enquire what light is thrown upon it in the work before us.

Chemists are inclined to believe, that of the nature of the marsh poison we know nothing; we ought, therefore, with the ultimate view of being acquainted with it, to consider all the circumstances connected with its production. "The poison is produced," says Dr Ferguson, "at a highly advanced stage of the drying process." This fact is an important one, particularly in a practical point of view, as some useful hints are suggested in the purification of large districts which flow from a simple principle of this kind. "I ought to remark," says M. Monfalcon, "that ponds, formed of great masses of water, are moderately unwholesome; that they are only very injurious to the health of man, when their partial and occasional drying up brings them to the state of a marsh. This takes place during the heat of summer and the fishing season." The author accordingly proposes to purify the air from the effects of such marshes, by augmenting in thickness the liquid mass. "If the water," he adds, "has nearly dried up during the course of summer or the beginning of autumn, the danger to its vicinity will be the greatest possible. The best means of preventing the development of an endemic fever would be to inundate the marsh." M. Monfalcon has, however, suggested this remedy from a preconceived view, that *it is from the bottom of marshes*

that emanations are disengaged, and that the evil arises from the putrefaction of vegetable and animal matter, with which the bed of every morass is filled. When, therefore, there exists much water in a pool, its depths become proportionally less heated by the rays of the sun, and noxious emanations are consequently suppressed. In one respect, it will be evident that both the French writer and Dr Ferguson are agreed, viz. that the marsh is never pestiferous when wholly covered with water; but the argument assumed, that the evil arises from the putrefaction of vegetable and animal matter with which the bed of every morass is filled, forms a distinct proposition, which we shall consider hereafter.

If, then, the view of Dr Ferguson be correct (and what reason have we to doubt it)? our inquiry regarding the production of the marsh poison becomes limited to fewer circumstances, and acquires a steadier character. Should there be no other condition necessary, than that pure and clear water should be absorbed by soil, and afterwards exposed to speedy evaporation, the first question which arises is, May not different geological states exist that are connected with the retaining soil, whereby the water which is collected may become more speedily exposed to evaporation from the sun's heat, or other causes? M. Monfalcon decides in the affirmative, alleging, that the circumstance common to the subsoil of all reservoirs of stagnant waters in the different parts of the globe, is its impermeability. But this attempt at generalization ought to be regarded as nothing more than subservient to the author's favourite hypothesis. Conceiving that the marsh poison proceeds from putrid animal and vegetable matter, it was necessary, that, in every marsh, there should be an impervious subsoil, calculated to retain these ingredients, upon which the sun's rays might take effect so as to generate noxious emanations. He adduces as an example, the ponds in the Department de l'Ain. "The vegetable earth," he observes, "which is covered with water, is only some inches in thickness; below is a compact, yellowish clay, hard, mixed with oxide of iron, and impermeable to water." He also cites M. Reboud, who has remarked, that "the marshes de Vial en Bresse have a bed of turf of unequal thickness, formed from the debris of organic remains; below is a second similar bed, but mixed with a fine sand, which increases in quantity in proportion to its depth; a third layer is composed of flint stones and a light earth; a fourth of mixed earth, beds of clay or of marl; lastly, there are other parts more solid, the nature of which it is not easy to determine." These are certainly specimens of the different earthy and vegetable layers, which compose a marsh, being deposited on an impermeable soil. But the next question is, if this impermeability be common to *all* pestiferous districts? Here, then, again,

we have to regret, that M. Monfalcon did not make himself acquainted with the observations of Dr Ferguson, who distinctly affirms, that the soil of the leeward shore of Guadaloupe, so far from being impermeable, "*is a remarkably open, dry and pure one, being mostly sand and gravel, altogether and positively without marsh in the most dangerous places; yet it is inconceivably pestiferous throughout the whole tract.*"

Still it is a question if water thus absorbed may not, even from a terrestrial source supposed to be quite free from vegetable and animal putrefaction, derive certain qualities whereby a noxious influence may be imparted to its exhalations. Many waters acquire very marked and distinct properties from rocky basins, or from the furrowed channels of the mountains through which they flow; hence the great variety of mineral waters which occur on the surface of the globe. And although certain properties may exist in waters which it is difficult, if not impossible, to detect, by any processes of the laboratory, they may still be confidently inferred from their effects on the animal economy. The fish which live in one current perish in another, though each stream performs, under similar circumstances, apparently its winding course. Evidences of this fact are diffused throughout works of natural history, and they can with difficulty be accounted for, except by supposing some peculiar property which a current may acquire from the rocks over which its corroding influence is extended. Whether these conjectures are well founded or not, future experiments may probably determine. They are thrown out as hints, and nothing more.

But it would be unphilosophical to doubt, that there are not various conspiring causes by which a fluid that is absorbed by soil becomes, in an advanced stage of the drying process, remarkably insalubrious. An interesting paper, translated from a foreign journal, and inserted in the present number (page 263.), proves that when salt and fresh water are mingled together, remarkable predisposing powers are communicated to the fluid, by which it is enabled to generate the marsh poison. Dr Ferguson has observed that the soil of the leeward shore of Guadaloupe is remarkably pestiferous throughout its whole tract, but that it is in no spot more so than on the bare sandy beach near the high water-mark. It is a pity that we have not been favoured by this very intelligent and close observer, with more remarks on an interesting incident of this kind. M. Monfalcon has some little to say on the subject, but we much doubt if his explanation be the true one. He conceives that the mixture of salt and fresh water hastens the putrefaction of the vegetable and animal matter which the former brings along with it in the course of its tide. We shall quote his remarks on this subject.

"Marshes may be distributed into two great classes: those which are formed by rain or river water (fresh water marshes), and those which the sea forms on such coasts as are washed by its waves. They may again be either salt marshes formed by the care of man, or briny marshes caused by the disposition of the soil. The latter are situated in low countries, little inclined, and accessible, during high waters, to the sea, which brings along with it a great quantity of insects and fish, as well as vegetable matter, the putrefaction of which is very rapid, but more so, if the salt water is mixed with fresh. Their union during great heats causes an extreme insalubrity, and many epidemics have had no other cause. Donius has remarked the inconvenience of this mixture: *Si autem cum his* (fresh stagnant waters) *marinæ aut minerales conjungantur, facillime putrescunt* *.

"Many salt marshes have been created by the hand of man; these are vast basins, the bottom of which is levelled and beaten with potters' earth, to retain the salt-water, which is only introduced there in a small quantity, to the end that its evaporation, by the rays of the sun, may be completed. Such are the salt-marshes of the Peccais, on the coast of Languedoc, and those of the sea coast in the countries of Aunis, Bas-Poitou, la Bretagne, and la Normandie; their vicinity gives little inconvenience when they are well taken care of, and precautions for the preservation of health are not neglected. The pond of Martigue, on the coast of Provence, between Marseilles and the Rhone, is surrounded by natural salt marshes.

"Many sea ports of South America and of Asia suffer extremely from the vicinity of maritime marshes. Who is not aware of the excessive insalubrity of many cities in the south of the new world? An excessive heat, great humidity, vast masses of stagnant salt water, and, among the inhabitants of these places, great negligence in keeping up the canals and the port, added to the neglect of cleanliness, form the circle of causes which renders the yellow fever the scourge of these climates."

But it is now time to take a retrospective glance at the progress of our remarks. If we have coincided with Dr Ferguson, that the marsh poison *may* be produced by no other circumstances than the absorption of water by a soil uncontaminated with vegetable or animal putrefaction, and the speedy evaporation of the absorbed water by the heat of the sun, we should be the last to deny that there may not exist other conspiring circumstances, by which the poison may be no less generated. On this account, we think that Dr Ferguson has insisted, without adequate proof, of this being the only and essential circumstance necessary to the generation of the poison; and that M. Monfalcon has equally erred in supposing that the virus cannot be produced without animal or vegetable putridity. We believe the true state of the case to be the following,—that the marsh poison,

* *De Restit. Salub. Agri Romani.*

of the chemical nature of which we know nothing, is composed of elements dissolved in watery exhalations, and that it may be indebted for its development either to earthy matter, putrid vegetable matter, putrid animal matter, or to a combination of these various substances.

Having, therefore, remarked that the watery vapour in which the virus is dissolved, may have been indebted for its impregnation exclusively to an absorbing soil,—having hinted at the probability that some peculiar quality of the absorbing earth might have exerted a predisposing influence, whereby the generation, or perhaps concentration, of the virus was materially promoted,—having lastly shewn that a powerful conspiring cause in the production of noxious emanations is the mixture of salt and fresh water,—we shall now proceed to more particularly notice those parts of M. Monfalcon's works, which would refer the generation of the virus to aqueous, vegetable, and animal putridity.

The first question, regarding which we find little satisfaction in the work before us, is, whether the elements of water, though uncontaminated with either vegetable or animal matter, are, when subjected to the circumstances necessary for the production of pestiferous emanations, less liable to exert a noxious influence in a pure than in a putrid state? Dr Ferguson considers no circumstance to be necessarily connected with the generation of the poison, except *pure* water disappearing in an absorbing surface, and then exposed to an intense temperature. As an example, he observes that the bilgewater in the holds of ships, or the fresh water laid in for long voyages, smells at times more offensively than the most acknowledged pestiferous marshes; hence if aqueous putridity could produce the poison, the water on board vessels would, in tropical climates, be continually generating fevers among crews. But this objection is not of great amount, when we consider, that if, according to the principle laid down by this writer, a highly advanced state of the drying process be the condition essential to the production of the virus, this can scarcely take place in bilgewater, as long as the ship is running its course at sea. For, as Adouard has very properly remarked, "while the ship is running its course, the inferior part, situated between the waters of the sea and the dense stratum of the merchandise in the hold, maintains a temperature little adapted to the rarefaction of the fixed or elastic fluids that are inclosed there;" from which he has inferred, that a vessel is rendered less pestiferous when sailing in the open sea and full of merchandise, than when it is stationary, and all its superficies are in contact with a hot atmosphere." On this principle, he also explains why, in many instances, a fever does not

break out until a vessel has actually arrived in port; he informs us, that in 1821, a yellow fever was communicated at Barcelona, at the very time when goods were carried away with the intention of repairing the ship. These observations certainly disarm Dr Ferguson's arguments of a great part of their force, though they are not calculated to completely decide the question before us; for it must be considered, that Adouard's remarks were directed to vessels which carried negroes on board, and where the bilge-water, putrid in itself, would likewise be contaminated with animal putridity, produced by the excrementary matter, arising from the unfortunate wretches who were crowded to suffocation within decks. Are we, then, taking all these circumstances into consideration, authorised to deny that putrid water possesses any share of influence in the production of pestiferous emanations? By no means. Observations are still wanting to determine this curious yet very important question.

The next inquiry is, what share has *vegetable* putridity in the production of the marsh poison?

Bilge-water has been cited in supposed proof that its putrid elements are innoxious. If, however, as a disastrous case has shewn, the septic process of bilge-water be only modified by the presence of vegetable matter, as by a quantity of wood-shavings for instance, and then exposed to the influence of a tropical heat, —a poison may be induced equalling that of the most noxious marsh. The Priamus frigate, as Dr Burnett relates, lay at Plymouth, and there underwent repairs preparatory to her destined voyage. Having had her magazine fitted on a new plan, the shavings and chips resulting therefrom, instead of being removed from the vessel, were unfortunately suffered to remain in the lower part of the hold, and thus mixed with the bilge-water under the limber boards. On proceeding in her voyage to the West Indies, the foul state of the hold was indicated by most disagreeable smells, and by candles being extinguished when placed at its mouth. A fever first broke out in Antigua, and daily increased, to the destruction of numbers. Yet still the true cause was not suspected, until a sea voyage was undertaken to mitigate the disease, but without effect. The limber boards in the hold were then taken up, when such an offensive smell issued forth, as induced fainting, while several officers employed in this duty were immediately seized with fever. And thus, the putrid aqueous and vegetable matter of the hold, acted upon intensely by a tropical heat, was properly compared by the surgeon on board to a bog on shore of the most pestiferous nature. From this fact, then, we are quite prepared to advocate the opinion entertained by most authors, that vegetable

putrefaction is one among other powerful causes that may combine to give rise to the marsh poison.

M. Monfalcon, who lays great stress upon vegetable putrefaction, has devoted nearly a whole chapter to the Flora of marshes, which we shall pass over, as no particular inference can be made with regard to the production of the marsh poison from the properties of plants in a living state. He adopts an opinion, which is advocated by some and denied by others, that the steeping of hemp is followed by insalubrious consequences. This remark we think is not without foundation in latitudes more southerly than our own.

"The preparation of hemp," he observes, "is not less dangerous than that of rice. The inhabitants steep this vegetable, which exhales a narcotic and very virulent odour, in pools of water, exposed to the sun, and placed almost always near, and to the leeward of, their dwelling. M. Bourges knew a hamlet where the peasants were accustomed to put their hemp in a sink to the south of their houses. Nearly all were annually subject to intermittent autumnal fevers. By following M. Bourges' advice to avoid this practice, this endemial sickness entirely disappeared, and has returned no more."

M. Monfalcon gives us several illustrations in support of the pestiferous influence of vegetable putrefaction.

"I have availed myself of the experience of M. Valentin upon the agreement which exists between the yellow fever and marshy emanations. The following is an extract of the letter that this learned man wrote to me on the subject: 'The yellow fever manifests itself almost always in warm countries near stagnant waters, or near large rivers, which leave their mud uncovered, not far from the sea or upon the shore itself, principally in places where fresh water mixes with salt.

"There are examples of the development of this disorder in the interior of the United States. Very far from the sea, for example, near the Ohio and the Missisippi, at Gallipolis (a small French town built twenty-eight years since on the west bank of the Ohio), the yellow fever manifested itself in 1796, and many families were victims to it:" (M. Valentin at that time inhabited Virginia.) "The troop cantoned in this place, and commanded by Major Prior, from whom these details were procured, was exposed to the emanations of an immense pond in the neighbourhood. The heat and dryness of the month of August were so extraordinary, that the evaporation of the water of the pond left bare a great quantity of mud, in which were collections of vegetables in a state of putrefaction. From these exhaled an insupportable smell. The fever induced first attacked the inhabitants. The wind having then changed its direction, and turned exactly towards the place in which the troop was cantoned, half of the soldiers were seized with the yellow fever in the space of five days. The symptoms of this fever were those that maritime countries present.'"

These facts certainly afford very presumptive evidence, not-

withstanding the contrary has been affirmed, that putrid vegetable matter is a powerful conspiring cause in the production of fever. The same may be said of *putrid animal matter*, although, in turning over the pages of M. Monfalcon's work, we find a very meagre statement relative to this important department of the investigation. We are certainly favoured with the *novel* intelligence, that myriads of insects breed in stagnant waters; that toads and frogs are to be found there, as well as salamanders, syrens, carp, cormorants, and water rats! An obsolete theory, that marsh fevers were produced by animalcula which exist in the water, is raised from the dead, apparently for no other purpose than to afford the author the opportunity of a display of his exorcising powers; and accordingly he dismisses the theory to the shades, where it had long been quietly slumbering, and in fact forgotten. Really, this is not exactly the description of information which is demanded at the present day. If the author were seriously bent upon convincing his readers, that putrid animal matter had occasionally a considerable share in adding to the insalubrity of marshes, it was incumbent upon him to adduce some instances where the fever, which had its origin from moisture acted upon by heat, could in no respect be referred to *vegetable* putridity; and if, under these circumstances, putrid animal matter were abundantly present, the conspiring influence of the latter might safely enough be admitted. We must, notwithstanding, do the French author the justice to say, that a few cases of this kind appear in his work, though they are placed under heads very different to what we would have had them to be. He cites, for instance, Ambrose Paré, who has related that, in 1562, a considerable quantity of carcases was thrown into a well near the Chateau of Penè upon the river of Lor; and that the emanations which exhaled from it infected the whole of Agenois in a radius of six leagues, and produced there a disease to which the French surgeon gave the name of *Peste.*

Another case of this kind may be found in the work, but it rather relates to quadrupeds than to the *Homo sapiens* of Linnæus. We shall transcribe the passage.

"It is known that the mountains of Auvergne are humid and cold; the snow covers them till the month of June. From that period thick fogs surround them. The pasturages there are sufficiently fertile, but very marshy. The cattle which die are buried in these meadows, at a very small depth from the surface, and the cadaverous exhalations unite their insalubrity to that of the stagnant waters. These exhalations, in addition to the continual exposure of the animals to the action of the cold and humid air, are the principal causes of the peculiar disorder *la maladie charbonneuse enzootique,* which prevails among the cattle of Auvergne. It has been described by M. Petit."

In short, it was incumbent upon any author writing upon the history of marshes, to bring forward every fact which tends to prove the influence of animal matter in occasionally modifying, or perhaps adding to the virulence of marsh emanations; and we repeat our regret that little evidence of this kind has been adduced in the present dissertation. If, therefore, facts of this kind be really a desideratum, we must take the trouble of collecting them ourselves. On this subject Humboldt is probably in point. He informs us, that, during the earthquakes and eruptions to which the volcanic parts of South America are subject, the subterranean lakes which had been formed in extinct craters, would often burst from their confinement, and carry along with them, in the course of their streams, an immense quantity of mud, sufficient to produce inundations over a large extent of country. And, in all these instances, the fish with which these lakes had been abundantly stored, were carried into the low lands, where they putrified, and generated destructive fevers.

These are the febrile effects which appear to result from the influence of the marsh poison, when its virulence is increased by putrid animal matter. Not unfrequently, however, both animal and vegetable matter, in a conjoined state of putridity, exercise their noxious influence on the human body. Monfalcon quotes an instance of this fact from Humboldt, in his remarks on the insalubrity of Vera Cruz. "These low and marshy places," says the traveller, "are so much the more to be feared, as they do not remain constantly covered with water. A bed of dead leaves, intermixed with fruit, roots, larvæ of aquatic insects, and other remains of animal matter, enter into a state of fermentation, according as they are heated by the rays of a burning sun."

But it is time to sum up our conclusion. While we have admitted with Dr Ferguson, that the purest water, when absorbed into a soil where it had previously and recently abounded, may, in a highly advanced stage of the drying process, give rise to the marsh poison, we have still been inclined to suspect the greater influence of water when in a state of putridity; while we have, with far less hesitation, advocated the noxious effects of vegetable and animal putridity. But, in an investigation of this kind, some distrust in the conclusions to which we have arrived is an almost unavoidable feeling of the mind.

We have also shewn how the marsh poison may be developed under various circumstances; as, first, when pure water is simply absorbed by soil, and afterwards exposed to a high degree of temperature. Nor is it necessary that the water should be in a state of putridity; although it is far from being improbable that

a condition of this kind may facilitate the generation of the virus, or add to its noxious influence. This remark, however, applies with much more force to the commixture of salt and fresh water,—to putrid vegetable matter,—or to putrid animal matter,—when, separately or conjointly, they mingle with the water of the soil which gives rise to marsh emanations. In short, we know far too little of the nature of the marsh poison, to contend that it may not be evolved during the decomposition of various substances, which differ widely from each other; and we must shut our eyes against a considerable number of facts, if we seek to assign the evolution of its subtile and peculiar elements to any one chemical substance, or to any one circumstance alone.

Philosophers have long endeavoured to ascertain the chemical ingredients of the marsh poison. But what have they done? On this head we find, in M. Monfalcon's work, a well written chapter. We are introduced to the opinions of various philosophers. Varron saw, in marsh emanations, myriads of minute and invisible insects, that were introduced into the lungs, and there engendered a multitude of obstinate diseases. In a barbarous age, these emanations were referred to the conjunction of certain planets. The followers of Paracelsus imagined that they were sulphurous and saline exhalations. It was a favourite notion of Hoffman, that marsh emanations increased the density of the air, affected its elasticity, and thus produced, on the circulating system, the accumulation of a quantity of humours disposed to putrefy. Volta and Fourcroy carefully collected some of the gas exhaled from the surface of marshes, which, as we might expect, was of an hydrogenous nature. Their experiments were followed by others; whence it was an opinion entertained, that a poisonous gas was disengaged, composed of carbonic acid, of azote, of carburetted hydrogen, and occasionally of oxygen. Some chemists held, that the poison was merely carburetted hydrogen, analogous to that of coal-mines; though phosphorus, as well as the ammoniacal gases, were likewise imagined to enter into its composition. Others named the gas an oxygenated azote, or an unknown animal oxide. Moscato thought that he had succeeded in condensing these emanations under the form of a mucous substance, which gave out a cadaverous smell; and another experimentalist alleged, that they possessed a sensible viscosity. M. Regaud de Lisle obtained, from the condensation of marshy vapours, a clear colourless fluid, in which, when agitated, might be perceived light flocculent matter, having an odour feeble, sulphurous, and very analogous to that of the white of a boiled egg. The liquid, which was submitted to the examination of Vauquelin, contained apparently animal matter, ammonia, muriate of soda, and carbonate of soda. M. Julia, in the year 1819, collected a fluid, under similar circumstances

of condensation, from which a gas was discovered by heat, that contained, in a hundred parts, 2.27 carbonic acid, 3.30 oxygen, 67.53 azote. He also shewed, that no alcaline subsisted in the fluid or dew of marshes in a free state, but that it contained sulphates, hydro-chlorates and lime. Lastly, M. Deveze maintained, that the most salubrious air yielded to analysis the same results as those of the most pernicious atmosphere; adding that, in the closest or most confined marshes, as well as upon the most exposed hills, he had obtained 78 parts of azote, 21 of oxygen, and 1 of carbonic acid.

From these results M. Monfalcon expresses a complete indifference to all chemical analyses of the atmosphere and dew of marshes. It is true that the labours of the chemists are very unsatisfactory; but are we justified, on that account, in supposing that the problem will never be solved? The history of scientific discoveries, during the last century, is a complete antidote to such despairing views.

But the next question (upon which we can obtain little or no satisfaction in the treatise of M. Monfalcon) relates less to the variety of febrile complaints induced by the marsh poison, than to the causes of this variety. If, for instance, putrid animal or putrid vegetable matter, separately or conjointly, lend their influence to the development of the virus, or if the process be aided or strengthened by the commixture of salt and fresh water, are we entitled to suppose that any peculiar febrile affections would be the result of these varied products or circumstances which may give birth to the marsh poison? This investigation has not hitherto met with the attention which it deserves; as we believe that many facts might be collected, tending to shew, that fevers which take their rise from causes wherein putrid vegetable and animal matter, particularly the latter, have lent their noxious influence, have a far more typhoid form than when produced under different circumstances. For, if we admit with authors, that the emanations of common marshes are the undisputed source of intermittent, and of the whole tribe of remittent fevers, M. Adouard has, on the other hand, distinguished a very formidable affection of a typhoid character, which is engendered amidst the putrid animal effluvia of slave-ships; this he considers to be the *true yellow fever*, and gives to it the name of the Nautical Typhus. In the 6th volume of Dr Johnson's Medico-chirurgical Review (page 203), a remarkable case is cited, shewing, that, upon a grave being opened near Canton, where a human body had been deposited about two months before, such noxious emanations instantly arose, as to cause the men who were employed in the work to immediately sicken, and soon afterwards to labour under typhoid symptoms that exactly re-

sembled those of the true plague. To two soldiers the fever proved fatal. These curious facts certainly indicate that the elements which compose noxious emanations may differ as well in their nature as in their degree of combination, and that these differences may correspond in some degree with the variety of febrile affections which they induce.

But it is universally acknowledged that the influence of the marsh poison depends much upon the peculiar constitution of individuals. On the subject of temperament, considered as a modifying cause, M. Monfalcon has given us little information; for which reason we cannot resist quoting some excellent remarks and speculations of another writer on this subject, deduced from the peculiarities of the negro:

"The adaptation of the negro," says Dr Ferguson, "to live in the unwholesome localities of the Torrid Zone, that proves so fatal to Europeans, is most happy and singular. From peculiar idiosyncrasy, he appears to be proof against endemic fevers; for to him marsh miasmata are in fact no poison: and hence his incalculable value as a soldier, for field service, in the West Indies.

"One of the most obvious peculiarities of the negro, compared with the European, is the texture of his skin, which is thick, oily and rank to a great degree: and from this circumstance, the theorist, when he speculates on the mode of reception of the marsh poison into the constitution, whether by the lungs, the stomach, or the skin, may draw a plausible conjectural inference (for it can be no more) in favour of the last. It is certain, that, amongst Europeans, the thick-skinned and dark-haired withstand the influence of the marsh poison much better than those of the opposite temperament; and it is equally certain, from the never failing primary headache, that its first impression is invariably upon the brain, as if it had been taken up by the sentient extremity of the nerves, of which the skin is so truly an expansion, and conveyed to the sensorium.

"Another argument of analogy, in favour of the same opinion, may be derived from a reference to the plague. In that disease, we see reason to believe that the poison enters by the skin, because swellings of the lymphatic glands are amongst its most prominent symptoms; because oily frictions on the skin are said to be preservatives against it, and that carriers or workers in oil do not take the disease."

Climate has been long acknowledged as a most powerful agent, which exercises its influence in modifying the effects of marsh emanations. M. Monfalcon has, in his general views, conceived, that the hotter any climate is, so much the more rapid is the putrifying process, and so much the more diffused are humid exhalations. But, in generalising on this subject, he has included in his remarks what little he has to say on the influence of corporeal constitution, and thus has confused the enquiry. We shall extract his observations, which are included

under the head "Geographical and Medical Classification of Morasses."

"Marsh emanations do not produce the same effect in all climates; for every climate has its own peculiar temperature, and modifies, in a particular manner, the human system. Diseases are produced, of which the seat, physiognomy, and degrees of intensity, differ according as the combined action of the air, of the waters, and of their sites, have given rise to temperaments, or certain peculiarities of constitution. Their physiological influence receives a great modification from the common temperature of a marshy country, and from the pathological state of its inhabitants. If even the identity of marshy emanations, in all regions of the globe, should be perfectly established, they would not affect in the same manner a Dutchman and a native of South America, they would not produce the same results at Vera-Cruz and Sologne. Thus, then, to know them well we must make allowance for situation and temperature."

"Marsh emanations are much more to be dreaded in hot than in cold climates; they produce tertian agues in Germany, petechial fevers in Hungary, half tertian pyrexiæ in Italy, and the plague in Egypt."

"The more intense the atmospheric heat, observe Messrs Fournier et Begin with much judgment, the more rapid are the diseases in their progress; they are frequently mortal, and accompanied by various symptoms, indicative of the distension of the nervous system. Thus, if we examine the endemic affections in the principal marshy countries, we shall see in Holland intermittent fevers, quartans, tertians and quotidians, attacking a great number of individuals, but shewing a progress sufficiently slow to give the physician time to combat them. In Hungary these diseases are more frequently remittent, and the dysentery called putrid, affects in this country a greater number of individuals. In Italy, the fevers produced in the neighbourhood of the Pontine marshes are accompanied by very short intermissions, and they are more frequently complicated with the symptoms named ataxia. In Spain, more aggravated circumstances, such as vomiting of black matter, the yellow colour of the skin, the violence of delirium, &c. connect the diseases of this country with those of the coast of Africa or America. To conclude, in these two last parts of the world, the same febrile affections are observed, but accompanied by symptoms the most violent, and nearly always either remittent or continued."

"The cholera morbus and acute dysentery shew themselves with great intensity in the neighbourhood of the marshes of Bresse and Sologne, also near the stagnant waters of the two Indies; but these inflammations appear there less frequently, and above all, they affect a fewer number of individuals. It is certain that the diseases of the same system of organs become more acute, and if they are intermittent, approach nearer to a continuous type, in proportion as they travel from the cold countries of the north to the burning climate of the south. They are, in fact, the same kind of affections, though modified by the double influence of atmospheric temperature and individual constitution."

M. Monfalcon continues, by giving a classification of the destructive marshes as they occur in various climates of the globe, which he distinguishes into warm, cold, and temperate.

But, although the different circumstances of corporeal constitution and climate, are to be constantly kept in view, in attempting to explain the various morbid phenomena resulting from marsh emanations, yet we fear that there are still too many latent agents to be taken into account, upon the nature of which the greatest mystery prevails. M. St Hilaire, in a debate which lately took place in Paris, on the subject of contagion, has expressed an opinion, that the different endemial diseases which are produced in the countries watered by the Nile, depend upon certain varied, and, for the most part, inexplicable states of this river; that, when any cause occurs, which tends to derange the animal functions, the constitution becomes liable to the disease which may at the time prevail, whether it be ophthalmia or the plague; and that an individual in whom this predisposition may exist, is rendered obnoxious to the plague when ophthalmia prevails, and *vice versa* when the former is the endemial disease of the country. "It is to the Nile," says this learned physician, "that the plague in Egypt ought to be attributed; and, to free this country from the complaint, it would be necessary to take away this river. The Nile reigns master, during the whole course of the year, over the health of the country, and its variations totally change the medical constitution of the regions which it waters; the result being, that this constitution acquires an energy of which we have no example in our own country. Its energy is such, that whenever a disease prevails, it becomes of no signification what may be the cause which affects the health of an individual,—the constant effect is, that the disease which actually prevails, and no other, is induced. A waterman, after violent labour, threw himself, while he was bedewed with sweat, even though forewarned of his imprudence, into the waters of the river. Now, in France, he would have contracted a rheumatism or a pleurisy; but, in Egypt, where the plague raged at the time, he died on the following day, of this very affection, and no other. The same disaster happened to a drunken soldier, who, having escaped one day from the active surveillance which was exercised over him, incurred a severe debauch. His misfortune was no less predicted. "In short," adds M. St Hilaire, "the same men who died of the plague, would, under a different medical constitution of the regions watered by the Nile, have contracted the ophthalmia of the country; under a still different one, they would have contracted a lesion of the intestinal functions, and thus, during each month, whatever they do, they can never contract any distemper but that which may prevail at the time. This effect is so constant, that a person is en-

abled to say, beforehand, " In such a month I shall be seized with such a disorder, and in such a month with such another."

A similar view is taken, by another philosopher of the different medical constitutions of the air to which the countries of the Nile are liable. We shall transcribe it from M. Monfalcon's work.

" The philosophers who have accompanied our army to Egypt, had frequent opportunities of studying the action of the marshy emanations upon organization. This labour has been performed by a physician worthy of the undertaking, Prosper Alpinus. The stagnant waters in the canals of Cairo, filled the city, in the time of that great observer, with the confluent smallpox, with putrid, malignant, and mesenteric fevers, that returned every year, during the months of April and May, which were rendered so warm in these countries by the continued prevalence of the south winds. When the waters of the Nile retired from Alexandria, they left infectious fens and heaps of insects, and of carcases, the putrefaction of which filled the air with dreadful emanations. The principal symptoms produced by this cause were, a severe pain in the stomach, an extraordinary uneasiness, vomiting of acrid bile, bilious and putrid evacuations."

Such is the mystery attending the peculiar diseases which are generated by the marsh poison, at different seasons of the year. We shall, therefore, now proceed to inquire into the opinions entertained on the circumstances more particularly connected with its locomotion. It is in Egypt that these circumstances are most plainly exhibited, the greater or less rise of the Nile deciding what country shall give birth to its pestiferous emanations. The following remarkable statement on this subject was lately made public by M. St Hilaire, during a public debate in the French Academy. Our readers will, we are sure, excuse us for quoting it.

" The plague does not reign exclusively in Lower Egypt. At one period, it ravages Upper, and at another Lower Egypt; but always one region, to the exclusion of the other. Moreover, its invasion is constantly dependent on the extent of the inundation of the Nile. If this river rises unusually high, it is the high country which is attacked by the plague, because it is that which becomes subject to the emanations that rise from humid earths, heated by the sun. The low countries, on the contrary, situate below the place where the emanation of deleterious gas takes place, are exempt from it. When the rise of the water is small, it is the contrary that is remarked. The high country remains healthy, because it is exempt from humidity : but Lower Egypt, finding itself, in its turn, subject to the influence of the heat and humidity, is ravaged by the destroying scourge."

M. Monfalcon supposes that the marsh poison consists of atoms which exist, in a state of solution, in the vapours that are disengaged by heat from the half dried surfaces of marshes. This we conceive to be a correct view.

" Let us dwell (he observes) upon some points of the history of the locomotion of marshy emanations. The fetid fogs which elevate themselves above the marshes, are not these the deleterious emanations themselves? They certainly exist there, being dissolved in the watery vapour, which, I repeat, is their vehicle."

M. Monfalcon then acquaints us, that aqueous vapours, in which are dissolved the elements of the marsh poison, are raised by the heat, and consequent expansion, of the air; but that they are precipitated, in a condensed state, during the cool of the evening; consequently, the smaller eminences surrounding marshes, are rendered far more unhealthy than the immediate vicinity of the low ground, which constitutes the marsh itself. We shall give, at some length, M. Monfalcon's view on this subject.

" The disengagement of marshy emanations from stagnant waters, and their dispersion in the atmosphere, present many circumstances worthy of attention. In the greatest heat of the day, the air is clear, and may be breathed with impunity; but it is then that the exhalation is carried on with the greatest vigour. The vapours, containing infectious particles, rise in quantities, and to a considerable height, during the period of the heat, owing to the expansion of the air; and only fall when condensed by the increased cold of the evening. It is at night, therefore, that the vicinity of the marshes is most to be dreaded."

An experiment made by the magistracy of Bresse, was supposed to confirm the truth of this view.

" They attached to ten or twelve steeples situate on the most elevated points of the highest hills, floating flags, all of white linen, and each of the same quality, while, at the bottom of the lowest and most humid meadows, others were disposed in equal number, each of these being supported by poles of the height of three or four fathoms. All these flags remained in the same position for the same number days and nights; and, at the expiration of this period, were examined with care. It was found, 1*st*, That the flags placed in the low grounds and marshy meadows, were all impregnated with humidity, although it had not rained during their exposure; 2*dly*, That those on the heights were, on the contrary, covered by black, yellow, green, livid spots, which attested the deposit of the deleterious emanations. The same experiment, repeated many times, and in different seasons, gave constantly the same result, although attention was paid to the flags being washed with lye every time, and their position changed, putting those on the steeples in the low grounds, and those in the low grounds on the steeples. The Bressians, adds M. Riboud (from whom he had this information) have constantly remarked, that the fevers manifest themselves nearly always upon the heights, before being developed on the low grounds. When sickness annually reigned in Burgh, it commenced always in the more elevated parts of the city;—the low streets received it later, and were sooner delivered from it."

This experiment is far from carrying with it the weight that we could wish. The supposition that the black, green, and yellow spots are tests of the marsh poison is highly questionable. We are much more pleased to repose upon a fact like the following:

"The stagnant water of the lake of Agnano, exhales deleterious effluvia, which are carried backwards to the north-east of two or three villages, and even to the convent of Camaldules, a league distant, and situate upon a high mountain, from which may be enjoyed a fine prospect. When M. Louis Valentin visited this monastery, the Franciscan fathers who dwelt there appeared to him pale and cachectic. He who attended him said, while shewing the Lake of Agnano, situate below them, "See the source of the fever with which we are afflicted."

Some observers, however, adopt an opinion exactly opposite to that which is advocated by M. Monfalcon. Dr Ferguson, for instance, so far from allowing that the marsh poison can be carried up into the atmosphere, and then condensed, maintains that "it evidently possesses an uncommon and singular attraction for the earth's surface," and that the general admission of its baneful influence extending itself to situations higher than the level of the pestiferous marsh from which it drew its origin, may admit of a very different explanation. "The poison," he informs us, "instead of floating directly upwards in the atmosphere, creeps along the ground, so as to concentrate and collect on the sides of the adjacent hills." An argument assigned for adopting this theory is, that "the poison *is certainly lost and absorbed* by passing over a small surface of water," which Dr Ferguson thinks could scarcely happen, unless it came into direct contact with the absorbing fluid. But this objection carries not the least degree of weight with it. No experiment whatever has yet proved that water possesses any such power ascribed to it of *absorbing* the marsh poison; nor is any fact brought forward to shew that the intervention of a pool of water between a pestiferous marsh, and the individuals who may be exposed to its baneful influence, possesses a protecting power.—It is again supposed by him, that the attraction which the marsh poison possesses for the earth's surface, may be proved by the fact, that the inhabitants of ground floors are uniformly affected in a greater proportion than those of upper stories. He mentions, that, in a sickly season at Barbadoes, the proportion of those who were taken ill with fever in the lower apartments of the barracks, exceeded that of the upper by one-third throughout the whole course of the epidemic. But this fact in no way militates against the view of Monfalcon. Although it has been long acknowledged, that, in every dwelling, the elevation of a floor several feet above the ground, protects the inhabitants from contagion,

this can only be explained by the under surface of the floor so raised intercepting the noxious emanations as they arise from the ground, and rendering them comparatively innoxious; for, it has been properly remarked by Monfalcon, that "marsh emanations are never known to intimately impregnate surfaces over which they have been distributed; nor do these surfaces acquire the faculty of acting as they act." It is on this principle, that high trees planted near a pestiferous marsh, are, under certain circumstances, salutiferous. Deleterious emanations are intercepted by them; and, before they can impregnate the surface over which they are diffused, their virulence, which every circumstance leads to the belief is of short duration, becomes totally lost. "If marsh emanations, says the French writer, were not continually renewed, they would soon cease to be feared."

Marsh emanations are, as it is well known, liable to considerable locomotion from winds. Hence, certain currents of air acquire the name of purifying winds, or the contrary. The Trade Winds, which blow from east to west most part of the year, dissipate marsh emanations as they arise, and render the West Indies habitable. When this cause is withheld, sickness prevails. Monfalcon gives us examples both of the salutiferous and noxious effects arising from this cause.

"When Volney saw, at Cairo, the houses of merchants seated along the Kalidy, where the water remained stagnant until April, he thought that the exhalation of this morass would be a fertile source of disease. No such thing. These exhalations, so deadly in Cyprus and at Alexandria, have not the same effect elsewhere. Volney ascribes this phenomenon to the habitual dryness of the air, established by perpetual currents of wind, and by the vicinity of Africa and Arabia, which continually attract the moisture."

"A chain of hills in Corsica and Italy, very far from morasses, but placed in their line, and in the face of a wind which carried to them their emanations, were entirely depopulated and rendered uninhabitable. Orlandi cites an analogous example. The south winds passed over stagnant waters before arriving at some hills, the air of which they infected: these heights only became salubrious when Pope Paul V. had caused the marshes to be drained."

M. Monfalcon next acquaints us with the vertical and horizontal distances to which he conceives marsh emanations can extend themselves; which distances must, of course, be regulated by the state of the atmosphere.

"Marsh emanations spread themselves to a distance more or less considerable, according to the state of the air; they will rise perhaps to the height of four or five hundred metres (1400 to 1600 English feet), and extend two or three hundred metres (from 600 to 1000 English feet) in a horizontal direction. In Europe, it appears they cannot exceed these limits; but, in equatorial regions,

their activity is much more extended; and, in the West Indies, vessels at the distance of fifteen hundred toises from the marshy coast have felt their baneful effects. Elevated places in the neighbourhood, or to leeward of marshy places, are, in this manner, frequently more infectious than the level of the marsh itself."

On the effects of rain on marsh emanations, the remarks of the author are unobjectionable:

"Heat, even, without rain, frequently impregnates the atmosphere with a great quantity of water, by imparting to the evaporation of great masses of this liquid an extraordinary activity, and thus rendering the neighbourhood of marshes unhealthy. On the contrary, frequent rains during the heat refresh the air, repress the disengagement and ascension of infectious vapour, temper and renew the standing waters, and precipitate to the earth the hurtful emanations; but if strong and continued heats succeed to considerable rains, the season becomes very unhealthy.

"The reign of epidemic intermittent fevers takes place only during one season; and in all climates the neighbourhood of marshes is little to be dreaded in winter and spring. The condition favourable to the development and propagation of the marsh fever, is the prolonged action of heat and humidity united."

But it is now time to consider the Hygeian methods proposed to obviate the insalubrity of the vicinity of marshes. M. Monfalcon has given a good summary of these, though we cannot follow him in the exact order of his work. It must be evident, that, to know how to apply palliatives against the air of inundated lands, or to remove the evil altogether, essentially depends upon our knowledge of the circumstances connected with the development of the poison. We think, however, that the purification of unhealthy districts may be more or less accomplished by the following methods, which may be varied according to circumstances.

1*st*, *By establishing, in the vicinity of marshes, large plantations.*—The salubrious effects ascribed to large trees, planted in the vicinity of marshes, may be viewed in connection with the dispersing power of winds. It has been shewn, that marsh emanations, acted upon by heat, ascend into the higher regions of the atmosphere. Being there condensed, the humid exhalations in which the marsh poison is dissolved, are prevented from descending to the low grounds, by the interception of lofty trees, over the leafy surface of which they are deposited. It is evident, then, that when high trees are so planted as not to interrupt the free course of purifying winds, their effects must be salutiferous. Brushwood, as Monfalcon observes, by preventing the free circulation of the air, ought to have a contrary effect. But he qualifies this remark, by adding, that the effect

of both brushwood and trees is to attract marsh emanations; and that, when this noxious gas is condensed on an expanded surface, it is deprived of its virulence. His recommendation, however, to clear underwoods away, is very problematical. He advises the inhabitants of La Bresse, where endemial fever greatly prevails, to plant trees to the south of their ponds, and to open them out to the north, in order that the purifying winds from that quarter may have a free passage.—Dr Ferguson has also noticed the salubrious effect of plantations, but he accounts for it in no other way than by supposing it is a property of the marsh poison to have an attraction for, or an adherence to, lofty umbrageous trees. We shall quote the striking example which he gives.

" In the territory of Guaiana, where trees abound, it is wonderful to see how near to leeward of the most pestiferous marshes the settlers, provided they have this security, will venture, and that with impunity, to place their habitations. The localities of the plantations situated on the windward banks of the rivers that intersect Guaiana, and are generally covered by swampy woods in close vicinity, exemplifying this fact in a remarkable manner; and at Paramaribo, the capital of Surinam, the trade-wind that regularly ventilates the town, and renders it habitable, blows over a considerable track of swamp at a short distance, but which, fortunately for the inhabitants, is thickly covered with umbrageous forests. Experience, besides, has shewn, that there, as in all other new lands, the cutting down of these trees in the swamps, has ever been a fatal operation in itself, and in all probability would be productive of pestilence to the town."

2dly, By diminishing the superficies of the stagnant waters.—Hence the propriety of drains. A remarkable instance of the good effects of sluices and canals, has been lately pointed out by M. Desguenettes, in a debate on fever, which took place in Paris. He stated, that the village of St Laurent, on the frontier of France and Sardinia, traversed by the Var, which often inundated it, was so unhealthy that no garrison could remain there but half its prescribed time. The exigencies of war demanded the contruction of a bridge and a quay on the side of the French coast; from that time the Var has run without overflowing; and, since these labours have been accomplished, the country has been rendered healthy.—M. Monfalcon quotes classical examples in illustration of the Hygeian policy of forming drains.

" The ancient Romans executed immense works to drain the soil round their city. Great masses of stagnant water existed between the Aventine and Palatine Mountain, and the Tarpeian hill; they exhaled with abundance infectious vapours during summer. Tarquin the elder ordered them to be drained, and made canals to be opened, which led to the Tiber. These subterraneous conduits

ramified under ground through the whole extent of the city. They were constructed by arches. They were of a considerable height and breadth. Pliny called these canals and drains *Operum omnium dictu maximum, suffosis montibus, atque urbe pensili, subterque navigata.*"

3dly, By occasionally augmenting in thickness the liquid mass, particularly during a long drought, as in autumn.—(The rationale of this plan we explained in an early part of this review.)

4th, By preventing the commixture of salt water and fresh water.—Every thing that can be said on this subject, is included in the excellent paper by Georgini, which appears in the present number of our Journal.—(See page 263.)

5th, By obviating the accumulation of putrid vegetable and putrid animal matter. Monfalcon properly observes on this head,

> " The cleansing of great ponds situated near the sea, is an operation nearly impossible; but it is in the power of art to tear out or to cut the aquatic vegetables which grow in such a great number in the bosom of lakes."

On the importance of obviating the accumulation of animal as well as vegetable matter, we have already said sufficient.

6th, By a proper construction of dwellings.—On the importance of this recommendation, some very curious facts are detailed in an inaugural thesis of great merit, " De Febre Barbadensi," by Dr Ralph of the 2d or Queen's regiment. He has confirmed the observations of Dr Ferguson made on the dwellings occupied by the soldiers of the West Indies, stating, that far more were seized with remittent fever who inhabited the lower, than who inhabited the upper stories. He adds, that, in a lower story, some immunity was afforded to the soldier, if the bed on which he rested was elevated but a few feet above the surface of the ground. From this fact, we see the propriety of Monfalcon's recommendation to give to dwellings exposed to marsh emanations such a construction, as that the habitable part shall be elevated above the level of the ground on which it is built. The rationale of this recommendation, we have endeavoured to explain. We are sorry our limits do not allow us to quote the minuter directions given by the French writer, relative to the construction of such dwellings. They are valuable, and merit attention.

Again, there are several other Hygeian plans which M. Monfalcon has considered. One is the construction of large fires in the vicinity of marshes. Favourable results have been attributed to it during campaigns; and it has even been lauded by ancient authors. But we agree with the French writer, that fires have

no disinfecting property, but that they are good ventilators, and are useful in humid situations*.

But is is now time to bring our remarks to a conclusion. It may be expected that we should say something of the general character of the work before us. But what can we say? Simply this,—that the author has, by no means, put us in possession of all that is actually known on the subject upon which he has undertaken to write. For which reason, we are compelled to add, that a volume professing the same object as that of M. Monfalcon, is one of the greatest desideratums in medicine; nor are we without hopes that the period will not be long, when we shall have the pleasure of announcing that a similar investigation has been taken up by our own countrymen.

Our author has abundance to say upon the seat and treatment of the fevers induced by marsh emanations, which we consider to be much the least valuable part of his work. He is a disciple of the Broussais school, for which reason he must excuse us if, *at present*, we do not notice any of his remarks. We shall, at a future opportunity, address some general observations to these physiologico-pathologists, as they modestly style themselves. But before taking leave of our author, we cannot avoid quoting the account which he has given of the physical condition of the inhabitants of La Bresse. It is described with much feeling.

" The inhabitant of this melancholy site suffers from his childhood, and shews during the first days of his life the deep print of the insalubrity of the climate. Hardly has he quitted the breast, when he languishes and grows lean; his skin and eyes assume a yellow colour; his bowels become constipated; he dies often before having attained his seventh year. If he has passed over this term, he does not live—he vegetates: he remains weak in health, bloated, hydropic, subject to putrid malignant fevers, to interminable autumnal fevers, to passive hæmorrhages, and to ulcers in the legs, which heal with difficulty. With difficulty defending himself from these disorders, all of which frequently assail him at one time, rendering his life a scene of long agony, the inhabitant of La Bresse reaches his twentieth or thirtieth year. Already nature retrogrades; his faculties sink, and, commonly, the age of fifty years is the latest term of his days. Thus pass rapidly away many generations, the population preserving nearly the same equili-

* Were we to follow Monfalcon, we should state a 7th or 8th Hygeian plan, viz.

7th, By opening roads, multiplying communications, and establishing navigable canals.—It is difficult to see the force of this Hygeian recommendation, except in the general admission, that marshes are cleared during the progress of civilization. The use of canals we have already pointed out.

8th, By a strict attention to regimen.—Monfalcon has a great many remarks on this head. We cannot afford space to quote them.

brium. They marry early, and widowhood there is not long. It is not rare to see men or women from thirty or forty years of age married for the third or fourth time. Three brothers named Dupont, one of whom is a widower, have married fifteen wives. The certainty of finding vacant dwellings, and ground to till, attracts to this miserable country families of strangers. Day-labourers—servants on wages transport themselves;—they marry, they settle themselves;—and it is thus the problem is resolved, How a land so inhospitable is not depopulated? The moral follows the physical state. The labourer traces his furrow painfully and sorrowfully. His understanding is degraded like his organization: he has neither known the thoughtless gaiety of youth, nor the conceptions of ripe age. The companion of his labours is also the companion of his sorrows.

"Animals and vegetables are no less weakly constituted; they are stunted and short-lived."

This is a correct and melancholy picture of the vicinity of an European marsh; yet the effects are mild, in comparison with those resulting from tropical marshes, which are annually fatal to thousands of our fellow-mortals. It becomes, therefore, one of the most interesting problems of medicine, to discover the true nature and source of a cause which inflicts such a train of evils upon our humanity. Nor do we think that the time is far distant, when successful labourers will start up in this arduous, yet perilous field of investigation, who will be ranked among the most signal benefactors of the human race.

ART. XXIII.—*Conversations on the Theory and Practice of Physiological Medicine, or Dialogues between a Savant and a young Physician, a disciple of Professor Broussais; containing a concise exposition of the New Medical Doctrine, and a refutation of objections brought forward against it.* Translated from the French. London, 1825.

THE object of the work is farther explained by the following preamble.

"By comprising in these conversations the substance of the *examen des Doctrines Medicales,* the author proposed to himself to write for all medical men, with the special intention of facilitating the study of the new doctrine to pupils and practitioners, who have hitherto neglected to attend to it."

We protest against the system of Broussais, but we do not protest against the work before us; and for the following reason,—that it contains in a concise and pleasant form, the sub-

stance of what this school has had to say for itself in numerous volumes. As it would be disgraceful for a British practitioner to be entirely ignorant of doctrines which are at present disputed *inch by inch* throughout the Continent, we do not know where he could get so much general information on the subject, as by a perusal of the little volume before us. What the effect upon him may be, we will not venture to positively assert. We *think* he will never become a physiologico-pathologist.

The author of the work before us, communicates, in his introduction, the important intelligence, that, until the system of Professor Broussais was ushered forth, nothing but ignorance prevailed in the medical world: That if a patient recovered it was by chance, and that it was only after a physician had sent a few good, honest, unsuspecting souls into the other world, that he thought of trying a change of *experiment*, whereby his practice was rendered, now and then, 'less calamitous." We shall quote the severe sentence pronounced against the unfortunate physicians who lived before the time of Professor Broussais, or who do not now believe in his doctrines.

"The consequences of all this whimsical treatment, so unconnected, at times useful, at times hurtful, was on every occasion, that, after the termination, physicians neither knew if they had cured, nor if they had done harm, nor why nor wherefore."

It might be supposed, that the patient himself could tell whether he was hurt or cured; but let this pass.—Professor Broussais has at length deigned to enlighten the cloud of darkness. All proceeds from irritation of the stomach,—plague, yellow fever, smallpox, dropsy, worms. They are all caused by gastritis or gastro-enteritis, and all of these are curable by the application of leeches, and drinking water or bathing in it; and thus, if the disorder be only taken in time, the patient of M. Broussais may possibly attain the age of the wandering Jew.

In the preface, some good remarks are made upon the difficulties physicians meet with from their patients dabbling in medicine, and having each their theory on the causes of diseases, and the effects of remedies.

"These prejudices," says our author, "are among the principal obstacles that physicians have to encounter at the bed-sides of their patient. One, seduced by the trash of Leroy, is gaping after purgatives; another, who has smelt the theory of Brown, is only satisfied in proportion as he finds there is prescribed for him stimulants and tonics. There are others who perceive in every disorder a suppressed perspiration, and never seek the aid of a professional man, until they have been sweated most unmercifully, by covering themselves with warm clothing to excess, and, at the same time, drinking large quantities of heated liquids."

Now, the *modest* though anonymous author, after giving this exposé of the great danger arising from persons, unlearned in medicine, consulting such works to discover their own diseases, overcomes his natural diffidence, by adding that the present volume forms an exception to the remark.

"His design is not to enable the public to treat themselves in severe disorders, which he has proved, in a very positive manner, by abstaining from furnishing the *formulæ;* but he has been desirous of placing them in a situation to know and reject whatever can prove injurious."

The body of the work is divided into dialogues between a savant and a young physician, a disciple of Broussais, on the various diseases to which human beings are subject. In these dialogues, which we confess are amusing, the savant is *supposed* to state all the objections to the system of Broussais, but, *of course*, ends by being converted himself to the new school.

The first dialogue is on essential fever, in which the young physician is supposed to have nearly killed his father, by treating him according to the old French practice,—by giving him a strong emetic—by afterwards bleeding him in the foot, and when he was alarmed for the debility induced, by drenching him with veal-broth and wine-whey; but a friend having come in, and finding the patient nearly dying, applies, according to the system of Broussais, fifty leeches to the pit of his stomach, afterwards leaves him to sleep, and when he awakens hungry, only allows him a little lemonade. The patient gets well, and the young physician thus proceeds:

"*Physician:* Suppose, for the sake of argument, in a village, town, or hospital, a hundred disorders beginning like my father's. If these are all met the first day by bleedings at the pit of the stomach, they will be stopped. If they are treated as I began to treat my father, the disease will go on, and a moiety, at least, of them will die; others will be prolonged, and, for a considerable time, will leave to their victims a precarious state of health. Some will be cured in spite of the improper treatment, by a violent effort of the constitution called a crisis; that is to say, by spontaneous hemorrhages, formations of matter, or sweats, &c. In the first mode of treatment there will be no epidemy, in the second there will be an alarming one. The sick, if together, would become a focus of infection, which would endanger the health of those persons who are obliged to approach them. Now, this difference, which is immense, is entirely subject to the knowledge or ignorance of one single fact, that of gastro-enteritis being the organic cause of the disease."

"Adynamic fever is gastro-enteritis, arrived at such a degree of intensity, that the strength diminishes, the intellectual faculties are blunted, &c. &c."—"The term Putrid Fever only indicates the fe-

tidity of the breath, perspirations, and stools, that are joined to the preceding symptoms.—The Malignant or Cerebral Fever, is but the irritation of the brain, added by sympathy to the gastric inflammation which produces the pretended bilious, mucous, and putrid fevers. For when the brain is primarily inflamed, this state is designated by the terms frenzy, *arachnitis*, or *encephalitis*."—" These are the essential fevers of authors." " You have seen a specimen of the treatment which is proper for every case of gastro-enteritis, beginning at the unlooked for cure of my father. Employ neither emetics nor cathartics in the commencement; in case of extreme plethora practise general bleeding, but, in most cases, we can do without it. So many leeches ought not, in all cases, to be applied; the blood from the orifices should be permitted to flow, but special care must be taken to enforce abstinence from nutritive drinks after their operation. If the inflammation does not yield to the first application, this may be repeated as long as the patient is not exhausted; but if he suffered, before the fever, a chronic inflammation, and is already much fallen away, the curative means ought to be limited to the use of emollients. It is with lemonade, eau de groseille, the mucilaginous ptisan of gum arabic, barley water, or even pure water, and in carefully forbidding soups, that is followed up a gastro-enteritis, which has a long time resisted or is obstinate."

Savant: Your arguments are pressing. I want experience, as you have justly said, to enable me to reply. I cannot do otherwise, than fairly agree, that the common bilious, mucous, putrid, and malignant fevers, are the effect of an inflammation of the stomach and intestines, which have not been stopped in their commencement; but do you treat the plague as a putrid malignant fever?—*Physician:* Yes, sir; and our successes are the same; although they are less numerous, owing to the magnitude of the evil.—*Savant:* And the yellow fever?—*Physician:* It approaches still nearer to our ordinary fever, since it has neither carbuncles nor buboes; and it ought to be treated as the gastro-enteritis of my father.—*Savant:* Why then did your medical brethren suffer so many victims to perish at Barcelona?—*Physician:* Because they were ignorant of the physiological doctrine."

When, in olden times, it was the fashion to refer every known word to some Hebrew root, it was remarked to a keen etymologist, " You propose to tell me where all languages come from, I can tell you where they are all going to." So we may reply to the Broussaians, " Where many diseases come from, Heaven knows! But where they are all going to, we know passing well.—To gastro-enteritis,—to this complexion must they come at last.

In the young physician's directions for checking the progress of diseases of the heart, he makes an attack upon an old and faithful friend of our midnight watchings and literary labours, which we cannot quote without becoming indignation:—

" Coffee," he asserts, " stimulates the stomach; and, if there be a gastritis, prevents its cure; it equally carries irritation to the heart,

agitating it, causing palpitation; and, to use a vulgar expression, stirring up the blood. There is not one nervous person, sensible, or attacked by an internal inflammation, that can, with impunity, take coffee."

Hydrophobia, the physician considers, in some cases, to be *spontaneous* in man as well as in dogs.

"It may also be the effect of exasperated anger; for it is clearly proved, that furious persons, who were not suspected of hydrophobia, have communicated this disease by their bites; and it is known, that rage acts strongly on the *pharynx*, heats the throat, agitates the lower jaw, by convulsive trembling, (grinding of the teeth,) excites the secretion of saliva, and fills the mouth with frothy matter. It may be suspected, that the saliva, depraved by this local irritation, becomes a real poison to those who receive it in a wound, occasioned by the bite of the enraged or furious individual."

It is added, however, "there is no instance of a man having communicated it to *animals* by biting."

Our disciple of the school of Broussais, in one part of his work, remarks,—

"There is no cure, by charlatans, housewives, or witches, however extraordinary it may appear, not excepting the lately celebrated cure performed by the priest of Vauchassis, that does not associate with the principles of the physiological doctrine."

We are happy that the Broussaian has given us a signal opportunity to profess ourselves of his opinion.

To conclude, if we object to the generalising system of Broussais, we must in candour admit, that some few good practical inferences necessarily flow from it. Of this the reader will be convinced, by perusing the volume before us.

ART. XXIV.—*Recherches Anatomico-Pathologiques sur la Phthisie.* Par C. A. LOUIS, D. M., Membre adjoint de l'Academie Royal de Medecine, de Paris, 8vo. pp. 550, 1825.

Anatomical and Pathological Researches on Phthisis. By Ch. A. LOUIS, M. D. Paris, 8vo. pp. 550, 1825.

THE above valuable addition to the many excellent works upon the anatomical pathology of phthisis, which have been presented to the public within the last few years, has afforded us much pleasure, and no small share of information in the perusal. The free unprejudiced views upon which the researches appear to have been conducted, leave us no reason to be dis-

satisfied with the results at which Dr Louis has arrived, though occasionally repugnant to the observations of Bayle and Laennec: and the immense number of subjects, almost two thousand, from which his observations have been collected, within the short period of four years, and consequently with all the *unrecorded* circumstances fresh in his mind, stamps a high degree of authenticity upon his general deductions, particularly for the climate and inhabitants of Paris. With the exception of the valuable papers of Drs Abercrombie and Alison, we are ashamed to say that almost nothing has been contributed by our own countrymen to the history of Phthisis, since the able production of Dr Duncan *senior*, published in 1813; whilst the observation of the French Schools has been unceasingly directed towards its elucidation, and rewarded with two of the richest sources of medical discovery;—a distinct knowledge of the history of tubercles, and various other specific formations, with their relation to the inflammatory action with which they are generally coexistent; and the advantage of a new sense applied to the discrimination of pectoral disease, by the happy invention of the stethoscope. It would be absurd to suppose that this tardiness is referable either to want of industry in the physician, or of frequent occurrence in the disease. We know the reverse to be the case in both instances; and entertain no doubt that the consequence is fairly to be attributed to the obstacles thrown in the way even of pathological dissection in this country. Whoever should remove that obstacle, would do more to revive a spirit of observation, and, we were going to say, a devotion, to this branch of the profession, than could at present be effected by any other means whatever.

The work of Dr Louis is divided into two parts. The first is dedicated to the examination of the *anatomical lesions* observed in the lungs and other organs: the second considers the *symptoms* attached to each of these impairments. Superadded to the whole are some general considerations relative to the history of phthisis, its causes and duration. He confines himself almost entirely to the tubercular form, thinking with M. Laennec, that the granulations of Bayle are only incipient tubercles; and that cancer, ulceration, melanosis, and pulmonary calculi, are to be referred to other diseases.

The anatomical lesions observed in the lungs have been so well described by Bayle and Laennec, that the author has found less to add in this department. The following are the most valuable of his remarks.

Not only do tubercles affect specially the upper part of the lungs, as has already been noticed, but even in cases where they attack given lobes, those which are uppermost are always the largest and most numerous, and become softened at a time when

those below are still solid. Nay, the superior of two lobes is often found totally disorganized, when the inferior lobe, at the same height, is still permeable to air, and only thinly studded with tubercles. In proof of these observations, Dr Louis adduces two very curious cases, in one of which a large excavation was found filled up by a fibrinous clot, and in the other by a portion of pulmonary tissue, perfectly sound in appearance, but without *any adhesion* to the walls of the cavity ! ! !

Out of 100 subjects, Mr Bayle had found 17 with ulceration of the larynx; ulcerations of the trachea were a good deal more rare, and he says nothing of the epiglottis. In 102 subjects, M. Louis found the epiglottis ulcerated in 18 instances, the larynx in 23 instances, the trachea in 31 instances. In several cases the ulceration occupied the whole fleshy portion of the trachea, in others, the cartilaginous rings were destroyed. The mucous membrane of the *bronchia* was frequently unimpaired in the vicinity of crude tubercles, whilst near excavations, particularly if very large, that membrane is always thick and red. He concludes from thence, that the inflammation of the bronchial membrane being posterior to the softening of the tubercles, it cannot be considered as the cause which produces the latter; but rather as the effect of the irritation determined upon it by the matter thrown out from the excavations. The position of the ulcerations of the trachea, which are more numerous and large at the surface of its posterior aspect, and of those of the epiglottis, which occupy almost exclusively its laryngeal aspect, give room to think, according to Dr Louis, that they are produced by the same cause, namely, the acrimony of the expectorated matter.

In every 10th subject, the parenchyma of the lung was affected with an acute inflammation, which had come on during the last days of existence.

Adhesions of the pleura our author has never found wanting, except in one case. The internal disorganization is always in proportion to their extent, presenting vast caverns when the adhesions are ample.

It is known that tubercles are generally developed in several tissues at the same time, particularly in phthisis. Dr Louis gives the following curious account of the numerical proportions of the occurrence of tubercles or tuberculous matter.

Small intestine in every	third person.	Ovaries, - - -	twentieth.
Large intestine, -	ninth.	Kidneys, - -	fortieth.
Mesenteric glands, -	fourth.	Uterus, - -	
Cervical glands, - -	tenth.	Brain, - -	one subject.
Lumbar glands, - -	twelfth.	Cerebellum, -	
Prostate gland, - -	thirteenth.	Medulla oblongata,	
Spleen, - - - - -	fourteenth.	Ureters, - -	

Out of 358 subjects, not one presented tubercles in any organ which had not also tubercles in the lungs.

The heart he found generally diminished in the same proportion as the other viscera. In the only two cases where it was enlarged, the dilatation was on the left side. The aorta was narrower than in other diseases, except in the bodies of hose destroyed by cancer. In a full fourth of the subjects, the aorta exhibited a remarkable redness on the internal aspect, though without any thickening or hardening of its membranes.

The esophagus and larynx were twice ulcerated; the former, besides, had its membranes attenuated and softened at the cardiac extremity. These affections are peculiar to phthisis and bad fevers.

In 96 subjects, of which the stomach was examined, that viscus was enlarged, in nine instances, to twice or thrice its ordinary volume; the great curvature descended as low as the crest of the os ilium. The same affection was only met with twice in subjects that had died from other diseases. The internal membrane was diseased in 77 cases, softened, attenuated, suffused, and thickened, exhibiting a mamillary appearance, &c. In two cases it presented ulceration, without any change of structure. The softening and attenuation occur three times more frequently in phthisis than in other chronic diseases.

The duodenum was ulcerated in three cases, and in a certain number the mucous crypts were enlarged.

The small intestines exhibited most frequently upon the elliptic folds, produced in them by the agglomeration of the mucous crypts, *opposite to the mesentery*, more or less of ulceration, which Dr Louis observes to be absent when the mucous membrane around is ulcerated, and the reverse. These ulcerations exist in five-sixths of phthisical patients. When these ulcerations are merely in the mucous membrane, the cellular and muscular membranes are much thickened.

The large intestines were found more rarely, but more extensively, in a state of ulceration. The mucous membrane was softened more frequently than in the small intestine; indeed, in three-fourths of all those affected with phthisis.

The ulcers in the intestines are by no means in the proportion to the tubercular degeneration of the mesenteric glands. Many have ulcers without a single mesenteric gland being affected. He finds little relation also between the tubercular affection of the cervical glands and the ulcers of the trachea; and, on the whole, refers the tubercular degeneration of glands to other causes than the ulceration of adjoining membranes.

The fatty degeneration of the liver, mentioned by Bayle, was present in two-thirds of our author's phthisical cases, though it only occurred twice in 220 bodies which had sunk under

other diseases. It occurs four times as frequently in women as men; and, in the majority of cases, the duodenum was sound. The spleen was frequently altered.

The peritoneum showed traces of recent inflammation, miliary, or tubercular granulations, in a few instances. The brain was the subject of remarkable impairments. The lateral ventricles contained one to three spoonfuls of serum, and the upper part of the brain, under the arachnoid membrane, was injected, in three-fourths of the whole subjects. In five the brain was universally softened; in five others partially. Dr Louis finds the *glandulæ Pacchioni* so often wanting, and so irregular when present, that he considers them as morbid. Around them the arachnoid membrane is constantly thick and opaque.

In conclusion, Dr Louis divides these appearances of phthisical dissection into *essential* and *fortuitous*. The essential are *adhesions of the lungs*, ulcers of the air and alimentary passages, fatty degeneration of the liver, and the tubercular affection wherever appearing. Fortuitous are peripneumony, acute pleurisies, softening of the mucous membrane of the stomach and intestines; peritonitis, arachnitis, softening of the brain.

When treating of the connection of these appearances with the symptoms, Dr Louis affords an instructive example of the danger of drawing absolute practical rules, in many cases, from mere anatomical evidence. He asserts, p. 193–194, that of all the patients, 1960, presented to him in the course of three years, he found almost none, except the phthisical, affected with hemoptysis, and he concludes from this, that, whenever hemoptysis is present, phthisis becomes indicated in a highly probable manner.

Now, it is quite true that phthisical persons often suffer hemoptoe; and it is also true that more of these than of any other description come at last to the dissection table; but we know that it is also true that great numbers are affected with hemoptysis, and recover perfectly, without ever manifesting any connection with phthisis, or the other causes conceded by Dr Louis. His error, then, lies in supposing his 2000 instances a fair average of the human race. Hemoptysis, except it extend to what he calls *violent*, is a disease which rarely leads a patient to apply to an hospital. He finds its frequency, in women to men, as 3 to 2.

The *pains* of the chest in phthisis, he proves to be owing entirely to the tubercles and adhesions, but sometimes to the one cause, sometimes to the other, as is demonstrated by the few cases in which these phenomena subsist separately.

With regard to *fever*, rigors were observed in five-sixths, sweats in nine-tenths. Dr Louis does not discover the least reciropcity between the hectic sweats and the diarrhœa. This

last was constantly found, except in about every 37th patient. When recent, the mucous membrane of the intestine was merely softened, or slightly ulcerated; when severe, the ulcers were always deep, extensive, and numerous; sometimes in the small, sometimes in the large intestine.

Loss of appetite, pain in the epigastric region, nausea, and even vomiting of bile, attend the lesions of the stomach. The tongue appeared red, as often where the stomach was diseased, as where it was sound.

The following table, with regard to the duration of phthisis, before producing death, is interesting, p. 185. It was taken from 114 patients, the history of whose disease could be distinctly ascertained. More women than men die within the first year.

Duration.	Deaths.	Duration.	Deaths.
24 days,	1	11 months,	2
35 days,	2	12 months,	5
50 days,	1	12½ months,	2
52 days,	1	13½ months,	2
81 days,	1	14 months,	3
3 months,	2	14½ months,	1
3½ months,	3	15 months,	5
4 months,	2	17 months,	2
4½ months,	2	18 months,	2
5 months,	9	19 months,	1
5½ months,	2	20 months,	1
6 months,	7	2 years,	8
6½ months,	1	2½ years,	2
7 months,	8	3 years,	4
7½ months,	5	4 years,	6
8 months,	4	5 years,	2
9 months,	7	10 years,	1
9½ months,	1	12 years,	2
10 months,	3	14 years,	1
10½ months,	1	20 years,	1
	63		51

The two tables subjoined, are constructed to shew that the number of deaths from phthisis is greater from the 20th to the 40th year than from 40 upwards, a remark in which he coincides with Bayle. Some curious observations in relation to this influence of age, may be seen in the paper of Dr Alison, above quoted, as published in the first volume of the Edinburgh Medico-Chirurgical Transactions.

Louis.

Age.	Deaths.	Age.	Deaths.
From 15 to 20,	11	From 40 to 50,	32
From 20 to 30,	39	From 50 to 60,	12
From 30 to 40,	33	From 60 to 70,	5
	83		40

BAYLE.

AGE.		DEATHS.	AGE.		DEATHS.
From 15 to 20,	-	10	From 40 to 50,	-	21
From 20 to 30,	-	23	From 50 to 60,	-	15
From 30 to 40,	-	23	From 60 to 70,	-	8
		56			44

We here conclude our analysis of Dr Louis's researches, in the words of the commission appointed by the Royal Academy of Medicine, to report upon them.

"In order to communicate a proper impulse and a just direction to the study of medicine, we cannot afford too much encouragement to those men, always a very select number, who, abandoning systematic discussion to the multitude, dedicate their life to the collection of facts at the bedside of the patient, and to the investigation, after death, of the traces of the disease which has preceded or followed, and to deduce from thence, by a due comparison of facts, their rational consequences."

II. PRACTICE OF SURGERY.

ART. XXV.—*A Practical Treatise on the Arterial System; intended to illustrate the importance of studying Anastomoses, in reference to the rationale of the new operation for Aneurism, and the surgical treatment of Hemorrhage.* By THOMAS TURNER, Member of the Royal College of Surgeons of London; Lecturer on Anatomy; and author of "Outlines of a System of Medico-Chirurgical Education," &c. &c. London 1825.

THE nature and object of this work is fully set forth in the title page. It is a publication evidently addressed to the student of surgery. As it is our object rather to present our readers with what is actually *new* in medicine, than to take a retrospect of established principles, it is not necessary on this account, to enter into a strict analysis of the work. We merely remark, in general, that it is evidently the production of a gentleman very well acquainted with his profession. Mr Turner is a successful teacher of anatomy and surgery in Manchester, in which town no less than two schools of medicine (under the separate guidance of Mr Jordan and the author) have long been instituted. We have no hesitation, therefore, in saying, that Mr Turner's work will be found a most useful compendium for

pupils in surgery, and (shall we add?) a few older members of the profession may perhaps derive advantageous hints from it. We shall quote, without comment, a few illustrations, which have not yet met with publicity.

Effects of tying the Aorta of the Dog.

"Sir A. Cooper, and other surgeons, have tied the aorta of the dog. It was divided just below the two first lumbar arteries, and the lumbar branches above the obliterated point are seen beautifully anastomosing with those below it, and forming free communications upon the posterior part of the spine: besides the lumbar, there are other inosculating branches.—Mr Ainsworth, one of the surgeons of our infirmary, tied the aorta in a dog, a few years ago, with perfect success. In the preparation, which he has kindly sent me for examination, I observe that the aorta is obliterated to the extent of two inches, the obliteration beginning immediately below the passing off of the first pair of lumbar arteries. These vessels, and the other lumbar branches below the obstructed part of the aorta, are amazingly enlarged, and anastomose by numerous branches with each other, and with the inferior intercostals. The internal mammary and epigastric are much increased in size, and unite very freely. I have seen another instance in which the operation succeeded: the preparation is in the possession of Mr Jordan, surgeon, and lecturer on anatomy, in this town. Here the inosculating vessels are distinctly seen, particularly those of the internal mammary and epigastric arteries."

Case of Aneurism of the Radial Artery.

"Aneurism sometimes forms in the course of one of the arteries of the fore-arm, but it more frequently occurs at the wrist or near it, than at any other part. The recurrent circulation in those cases will prevent success, if the ligature be applied to the vessel at any great distance from the aneurismal sac; experience has proved this, and observation has convinced me, that the operation may fail when the ligature is applied at no great distance from the disease. About four years ago, I saw, with Mr Ainsworth, one of the surgeons of our infirmary, a case of aneurism of the radial artery, situated in the vessel under the extensor tendons of the thumb. The patient, who was nearly seventy years of age, had had a small tumour in this situation for some time, and at length shewed it to a surgeon, who pronounced it to be an aneurism. When Mr Ainsworth saw it, he proposed to perform an operation, to which the patient consented. Reasoning on the result of tying the artery in other cases a little above the aneurismal sac, and from the diminution of pulsation in the tumour when the artery was compressed at the wrist, it was thought justifiable in the present instance to cut down on the radial artery at the carpus, and to surround the vessel with a thread; this, however, did not destroy the pulsation in the tumour, and it became, in a few minutes, nearly as distinct as it was, before the radial artery was tied. Finding that the sac was thus fed by anastomoses, and so abundantly as to render the success of the operation too doubtful; it was imme-

diately resolved to tie the ulnar trunk, on doing which, all pulsation ceased, but in a little time a faint tremulous motion was perceptible in the aneurismal swelling, which, however, gradually went off, and the disease was cured. This is a very instructive case; it shows that when an aneurism is situated in either of the arteries of the hand, that the operation of cutting off the main supply of blood, by tying the trunk of the diseased artery, is not always sufficient; that the inosculations are so free, as to feed the sac in a way that would prevent the coagulation of the blood which enters it, and consequently the success of the operation."

The foregoing is one out of the many cases brought forward, to shew, that more is to be apprehended from anastomosing branches, being very numerous, than very scanty. Other illustrations are given; we select those which refer to operations perfo.med for popliteal aneurism.

Mr Jeffrey's Case of Popliteal Aneurism.

"I am indebted to the kindness of Mr Jeffrey, of St George's Hospital, for the full acount which I subjoin, of an extremely interesting case which has lately fallen under his care."

"R. Buck, forty-seven years of age, a stout healthy man, of full habit, and by trade a gardener, was admitted into St George's Hospital, on the 23d of April 1821, under the care of Mr Gunning, for a popliteal aneurism in the right leg. The tumour, which pulsated strongly, occupied the whole cavity of the ham, bulging out on each side of the limb, and extending some way up the thigh. The leg and lower part of the thigh were excessively swoln and œdematous; and the patient complained of much pain in the aneurism, and in the situation of the saphenus nerve at the ancle. The limb had nearly its natural colour, but, if any thing, it was rather paler than usual. He said, that, six weeks before, a tumour appeared in the ham, without any assignable cause; that it soon became painful, and about a fortnight before his admission, he first observed the œdematous swelling of the leg.

"On the 27th of April, Mr Gunning tied the femoral artery in the middle of the thigh, with a single ligature, and afterwards brought the edges of the wound together with adhesive plasters and a roller. The ligature came away on the 14th of May, and by the end of the month the wound was entirely closed. On the 20th of June, only a comparatively small tumour was remaining in the ham; but the patient was unable to use the limb so as to walk upon it, and there was still a slight degree of œdema about the foot. On the 30th of June he was dismissed from the hospital as cured.

"On the 20th of July 1825, this man was again admitted into the hospital with a return of his disease, and became Mr Jeffrey's patient.—He stated that the tumour had entirely disappeared soon after he was discharged from the hospital in 1821. About five or six weeks before his readmission, he first observed that the swelling had returned in the upper part of the ham, and was at that time nearly the size of a hen's egg. The tumour now occupied the lower third of the thigh,

filling up the whole of the popliteal space, and projecting considerably on each side of the limb between the hamstrings, and the exterior muscles situated on the fore part of the thigh. It appeared to consist of three lobes, and was altogether as big as an ostrich's egg. The pulsation in the tumour was feeble, but distinct, and the skin covering it was of its natural colour. He did not complain of much pain—the limb was kept in the half bent position—and there was no swelling or œdema of the leg. The patient said that he was otherwise in perfect health, but he had a pale sallow complexion, far from confirmatory of his assertion.

" A consultation was held on the case, and it was proposed to endeavour to get at the artery between the part where it had been tied in the former operation, and the aneurismal sac; and in the event of failure, to amputate the limb. This was submitted to the patient's consideration; but as the first operation had not succeeded, he preferred undergoing amputation at once, rather than endure the pain and risk of two operations. In the beginning of August, he was attacked with a diarrhœa, for which he took a scruple of rhubarb and five grains of calomel, which produced a most severe salivation, with such swelling and ulceration of the mouth, as to render it necessary to postpone the operation for several weeks. On the 5th of September, his mouth having got quite well, Mr Jeffrey amputated the limb, between the tumour and the part where the femoral artery had been tied by Mr Gunning. A large vessel, which appeared to be the femoral, and seven or eight smaller ones, were tied. Whilst the stump was being dressed, the man became faint and sick. After being put to bed, he complained of pain in the small of the back, a pillow was placed under him, which gave him relief, and he took thirty drops of laudanum. His spirits, however, did not rally; he told a fellow patient that he should never get over it. At seven in the evening, his countenance assumed a yellow hue, and at nine o'clock he expired, having survived the operation eight hours.

" On the following day, the femoral artery and profunda were injected from the groin, and afterwards examined. The former vessel was found to be obliterated for the space of half an inch, at the part where the ligature had been applied four years ago; and immediately below it, two small branches are observed to enter the continued trunk of that vessel. These branches were equal to half the diameter of the femoral artery. The anastomosing branches given off above the obliterated portion, were a good deal enlarged.

" The amputated limb was also injected, and afterwards dissected. The sac seemed to have been formed by the giving way of the internal coats of the artery, and the dilatation of its outer or cellular one; and it was inferred from the appearances, that the circulation through the aneurism had never been wholly suspended, and that the disease in the last instance was a reproduction of the original tumour."

Mr Smith's Case of Popliteal Aneurism.

" Mr Richard Smith, senior surgeon of the Bristol Infirmary, has favoured me with the particulars of the following case, which came under the care of his colleague, Mr Nathaniel Smith :—James Wal-

lis, aged thirty-eight, was operated on at the infirmary, for popliteal aneurism of the left side, on the 12th of January of the present year. The tumour projected considerably beyond the line of the ham-strings, pulsated strongly, and gave very distinctly the sensation of aneurism. The disease commenced, spontaneously, about nine months before, and gave him but little uneasiness until a few weeks prior to the operation. The man was tall and muscular, by trade a ship carpenter, his work very heavy, and requiring excessive exertion. The operation was performed, and the artery tied with one ligature. The progress of the case was attended with some untoward circumstances: thus, a large abscess formed along the line of the femoral artery, which proved very troublesome. On the 29th day of January, without any obvious cause, a sudden gush of blood took place from the wound, very speedily amounting to six or eight ounces; but the hemorrhage spontaneously ceased. The blood was rather darker than arterious blood, but not decidedly venous. It appeared to the patient as if it came *up* the thigh to the wound. On the following day, the ligature separated, without any recurrence of hemorrhage, and the wound slowly healed. The man was eventually discharged from the infirmary on the 23d of March, tolerably well. The aneurismal tumour did not diminish much, till some weeks after the operation, when it subsided rather rapidly. Soon after the patient left the hospital he went to work; the tumour immediately began to pulsate, and has continued to do so ever since. 'At present,' Mr Smith writes, '(October 7th), there is no whizzing, but a regular and moderately strong stroke, and, to appearance, there is very little tumour. We are making moderate and elastic pressure upon the ham, and the man goes on with his work.' Mr Smith has kindly promised to keep an account of the progress of the case, and to communicate the same to me."

Mr Goodlad's Case of Popliteal Aneurism.

"Mr Goodlad of Bury, in this County, has obligingly sent me a case, where he secured the artery for a popliteal aneurism about the size of an orange. After the operation, the pulsation ceased, the tumour decreased, and the patient returned to his employment without a complaint, excepting a degree of weakness in the affected limb. Mr Goodlad thought, however, but he could not satisfy himself, that there was a trifling undulation where the tumour had been. In the course of five or six weeks, the patient called again on Mr Goodlad, expressing the utmost pain, with anxious countenance, and heat, redness, and violent pulsation in the aneurismal sac, which, though not so large as heretofore, was accompanied with more swelling around it, and a much higher degree of inflammation. However, on enjoining rest, a low diet, cold applications, &c. the inflammation subsided, the pulsation decreased, and soon became imperceptible, and now there is not a vestige of tumour discoverable by any external examination.

"These cases are confirmatory of the fears we have a right to entertain, from the anastomoses being too free, and therefore are favourable to the opinion, that we may err, if we are not guided in our choice of situation for the application of the ligature, by reflecting on the inosculating branches."

We meet, in the course of the work, with some curious notices of the variety which have been observed in the origin of the arteries of the fore arm.

" I have here to mention two very extraordinary varieties in the origin of one of the arteries of the fore arm. They are in the possion of Mr Ransome, one of the surgeons of our Infirmary. In one instance, I find the ulnar artery arising from the infra scapular branch. The axillary trunk sends off the infra scapular in the usual way, but certainly the branch is of nnusual size. From it goes off a large artery, which runs down the arm on the inner side of the brachial, and, in some parts of its course, in immediate contact with it; and in size it is little inferior to the brachial itself. At the bend of the arm, it seems to be united to the brachial, and then to continue onwards as the proper ulnar artery. This union is not a state of contiguity merely, but an absolute coalition, for the ulinar artery is much larger in diameter in the fore arm than it is in the arm. This case might, on a superficial examination, be regarded as one of those rare instances in which the brachial artery is double, and the belief would seem to be somewhat strengthened by the circumstance that this unusual branch furnishes the deep branches, and ramus anastomoticus,—the continued trunk of the axillary giving off only two or three very small muscular branches: but on close inspection it is evident, that the anomalous branch is the ulnar, having this very uncommon origin. I cannot find on record an instance similar, in all respects, to this, nor have I ever before seen a preparation in which this variety existed. Mr Green, surgeon to St Thomas's Hospital, and lecturer on anatomy and surgery, mentions in a letter, that he has seen it in one instance."

III. MIDWIFERY.

Art. XXVI.—*Elements of Operative Midwifery; comprising a Description of certain new and improved Powers for assisting difficult and dangerous Labours: illustrated with Plates, with cautionary Strictures on the improper Use of Instruments.* By Dr David D. Davis, &c. &c. Lecturer on Midwifery, London.—London, pp. 345.

FROM the mass of common-place matter under the title of Hints, Remarks, and Observations, with which the pages of the medical press are daily charged, we turn our attention with gladness to the perusal of an essay by a master of the art, and a veteran practitioner of twenty-five years' standing. Besides these claims, and that of novelty, the volume before us is dig-

nified with a high sounding title, nothing less than the "Elements of Operative Midwifery:" it is an elegant looking book, and, what is more attractive still, its pages are embellished by twenty elegant plates, comprehending upwards of sixty representations or figures of instruments, and the mode of using them. Our author is almost always the hero of his own stories, in which, as a practitioner, and as a mechanic of inventive genius, he appears, of course, infallible. To counterbalance this splendid qualification, however, we do not hesitate, upon the very threshold of this article, to assert, that the style of our author is confused, verbose, and confident; and that he has expressed himself, respecting some of the most amiable and first ornaments of the art, in terms of illiberality unbecoming a veteran practitioner.

Dr Davis divides his essay into five sections, which we shall proceed to examine *seriatim.* In the first section, which is chiefly occupied with an account of the causes that have conduced to retard the advancement of operative midwifery, our author sets out by communicating a familiar piece of intelligence, namely, "That the human female bringeth forth her children with sorrow." Among the obstacles which have impeded the progress of operative midwifery, he specifies the monopoly enjoyed in the practice of this department of medicine by female practitioners of former times. It has been presumed, however, that, in former ages, as females were more in a state of nature, and less subject to disease, persons of great mechanical talents and supernatural inventive genius were far less frequently required than they have been for the last century, in which the female system has been vitiated by irregularities, dissipation, and consequent disease, or morbid changes incident to civic life. The simplicity and comparative little suffering with which the process of parturition is conducted among those women in the yet uncivilized quarters of the globe, and the exceedingly rare occasion there is among them, to speak in the style of our author, for "obstetrical mechanics," is a proof that the paucity of obstetrical weapons, in the ages that are passed, should be ascribed, not to the want of ambition for improving "obstetrical mechanics," but to the want of necessity for such resources.

Another cause on which Dr Davis lays considerable stress, as having contributed much to retard the advancement of the instrumental department of obstetrics, is the want of protection afforded for midwifery by either of the colleges of the metropolis. We are as much attached to every department of our profession as the author; and we cannot help regretting that this most important branch of the healing art should have merited so little attention from the legislature: but it is our firm conviction,

that we have ourselves to blame. We have no doubt, that, if some of our number will abjure charlatanism, and other disreputable practices, that, ere many years have passed away, this department of the profession will meet with that protection which it merits.

Our author is a wholesale dealer in new terms. In many parts, he uses the phrase " amount of parturient power," as if we could calculate the power of uterine action by the multiplication table. As specimens of useless profusion of words, we have the maternal structures, and the living structures; the maternal passage, and the parturient passage; the hypogastric region of the abdomen, and the lumbar region of the abdomen, to distinguish them, of course, from similar regions of the thorax.

We give the following passages as specimens of our author's modesty, and his liberality towards some of the first ornaments of our art:

—" With a disposition, if I do not greatly deceive myself, to do ample justice to the labours of my predecessors, I was not long engaged in these pursuits before I became convinced that the art of midwifery had not arrived at its highest attainable perfection, either as to its theory or practice. Taking a liberal credit for the truth of this general statement, and for its application to several of the most important objects of the art, I think I may further venture to assert, that its principle is no where more strikingly exemplified than in the particular department of the profession of which it is the exclusive intention of the present essay to treat."—P. 2.

By this passage, it is clearly the wish of our author to convince us, that he had not been long engaged in teaching midwifery, when he discovered that its operative department was in a very deplorable state, both as to theory and practice. Although, from his ingenuity, we had every reason to indulge in the fond hope, that this evil would be remedied; yet, after having perused the volume before us once and again very attentively, we find ourselves very much disappointed; for there is not a single new idea in the whole book, except what refers to one instrument, to which we shall presently direct the attention of our readers in a very particular manner, since its obstetrical influence has been so powerful, as to give birth to a 4to volume of nearly 400 pages. The following quotation shews the disposition of our great reformer, to do justice to the labours of his predecessors.

" In adverting to the slow progress of improvement in the mechanics of midwifery in England, since the time of Gifford and Chapman, it is impossible to overlook the remarkable influence which was exerted in this respect by the late Dr William Hunter. The substantial talents of that eminent individual, aided, possibly, by something of adventitious distinction to which he was raised by

his contemporaries, gave great weight to all his opinions on popular and practical subjects. It unfortunately happened, that, by virtue of his general reputation, he also exerted a predominant influence as a practitioner in midwifery, and most certainly without being justly entitled to the credit of pre-eminent qualifications for its duties. It has been, indeed, stated, that he professedly engaged in its practice as a source of emolument, and in perfect subservience to other objects of ambition. By a concurrence, however, of several fortunate circumstances, he soon succeeded to the practice of Sir Richard Manningham and Dr Sandys, without the drudgery usually attendant upon what is called establishing a practice; and, therefore, presumably, without having been compelled to make himself master of the greater difficulties of the art. Not to insist, however, on the value of this inference, it is a well known fact, that he never made a single accession to its mechanical resources. It may be worthy of remark, that it was a part of the character of Dr Hunter's mind to admire, even to devotion, the resources of unassisted nature, and to look with extreme jealousy and distrust upon all interferences of art, as auxiliary to natural functions. For these reasons, and others, perhaps more immediately connected with the state of midwifery at his time, and having reference more especially to its then misfortunes, imperfections, and competitions; he was not many years in the practice of it, before he became the leader of a powerful party of obstetric alarmists; who, by glowing representations of the sufficiency of nature in almost all cases whatever, and heavily charged descriptions of the abuses and dangers of instrumental methods of delivery, embodied a prodigious influence against the pretensions of operative midwifery in general;—an influence, indeed, which not only had the effect of repressing much of the ignorant daring of the period to which it was particularly intended to apply, but which has continued to operate with more or less activity ever since, and, upon the whole, to the extreme prejudice, I might add, to the almost entire suspension of improvement in this department of the art."—P. 6.

The character which Dr William Hunter had acquired for himself by his unexcelled industry, the estimation to which the schools of the metropolis had been raised by his rare talents, and the lasting and substantial benefits which he has conferred on medical science, particularly in this country, by his unexampled munificence, are still so fresh in the recollection of every member of the profession, even the mere tyros of the medical schools, that we should have considered them more than sufficient to protect him against such a tissue of contradictory and groundless accusations. In the foregoing quotation, Dr Hunter is, *in the first place*, accused of having been the means of obstructing the progress of instrumental midwifery; *secondly*, Of not being possessed of pre-eminent qualifications to practise midwifery; *thirdly*, Of having practised it as a source of emolument, in subservience to other objects of ambition; *fourthly*, Of having made

no accession to its mechanical resources; *fifthly*, Of having relinquished every thing to the agency of nature; and, *sixthly*, Of being unacquainted with its difficulties. We shall now proceed to ascertain how these changes are supported by our author. With regard to the first accusation, it is true that Dr Hunter and Dr Davis pursued very different methods of acquiring a great name. Dr Hunter went to the dissecting room to acquire a knowledge of the structure of the human body, where he toiled with great industry for many years, and after having spent so considerable a portion of his time in this loathsome occupation, is it at all reasonable to accuse him of obstructing the advancement of science. Dr Davis, on the contrary, betook himself to the cutlers' shops, and of the reputation which he acquired in these quarters, we have a very high character by Mr Weiss, cutler, in page 295. of the Lond. Med. Chirurg. Review for January 1826. As to the second and sixth charges, we should like to ask Dr Davis, by what means did Monro *secundus*, and Dr Baillie, acquire such celebrity as physicians? Was it by mere reasoning on diseases in their closets, or by having first made themselves good anatomists, and afterwards attending at the bed-side? or, How have the real operating surgeons of the day acquired their laurels? Has this been accomplished by betaking themselves to the cutlers' shops to manufacture new instruments, or improve old ones, like our author; or by carefully studying the structure of the human body? The third charge is a very extraordinary one, and is as applicable to Dr Davis himself, and every other member of the profession, as it could have been to Dr Hunter: For admitting, even that individuals, possessed of independent fortunes, sometimes practise one or other of the departments of medicine, their intentions must be either to gratify some object of ambition, such as arriving at eminence in their profession, or adding to their previously accumulated wealth. As to the fourth charge, if Dr Hunter made no accession to the mechanical resources of the art, he entered deeply into the recesses of nature; and in his unparalleled plates of the gravid uterus, we have memorials of his contribution to the improvement of science, which will continue to be perused and admired when the contrivances of our author shall have sunk into oblivion and contempt. Had there been any room for improving, or any real necessity for increasing, the number of forceps, it is scarcely possible that that either could have escaped the notice of a man whose whole professional life was devoted to the service of the community; and who, for the advancement of science, fully gave up the treasure which he acquired by his unwearied exertions. As to the fifth charge, although we are willing to admit that Dr Hunter was inclined to rely rather too far on the powers of nature, yet we cannot

help thinking, that, in cases not requiring the mutilation of the fetus, the mother would have as great a chance of recovery, by trusting to her own efforts, as to a trial of the various contrivances of our great reformer. Let us suppose, for example, that a case falls into the hands of a young practitioner, who, from inexperience, cannot be possessed of much dexterity in applying mechanical resources; yet, were he in possession of the various kinds of forceps invented by our author, it would be a natural conclusion, that he would give them all a fair trial, before he would suffer himself to be foiled; and, under such circumstances, no one, we think, would entertain any doubt, that the result would be more fatal to the patient than leaving matters to nature.

To compensate for the indifference and apathy of Dr William Hunter and others, our author, with that zeal which should characterise every true lover of science, commenced the work of reform in instrumental midwifery, and succeeded so completely, that, for the last five years, "he has possessed the means *of effectually teaching his pupils in this department of the art.*" From the confidence with which our author expresses himself, it might be supposed, that he superintended the most extensive field for midwifery practice in the known world; or, that he even procured a royal edict for all the decrepid females in the different quarters of the kingdom, to assemble in the metropolis, to be under his immediate care. We confess, that, to our weak minds at least, no other method presents itself, by which an object of such vital importance and magnitude could be *effectually* accomplished. The Doctor's uncommon store of ingenuity, however, enabled him to triumph over every difficulty, by means much less complicated, and his success even exceeded that of the modern Prometheus; for, instead of a monster, our great mechanist succeeded in forming a woman, and furnishing her with all the organs which are concerned in the complicated function of parturition.

As we should suppose there are many of the profession, who, in the early part of their career, have not enjoyed opportunities, by which they might be *effectually taught* the use of instruments, doubtless for the sake of their own future prospects in life, as well as for the greater security of the valuable lives entrusted to their care, they will expect of us some account of the manner in which so momentous an object is to be acquired. Our readers will be surprised to be informed, that this extraordinary machinery is composed of a block of hard wood, cut after the shape and capacity of a natural or deformed pelvis; covered with buckskin leather; padded with horse hair; and a few steel springs placed in the outlet, to convey a degree of contractility to the aperture, which is intended to represent the

vagina. Of these contrivances we cannot offer a more correc opinion than is to be found in the following quotation from the 280th number of the Medical and Physical Journal of London, where the reviewer says,

"Every attempt to improve the art of midwifery must, at all times, be welcomed by us who are firmly convinced of its present defective state. The manner in which this most important branch of the medical profession is taught in this country has been justly condemned by a very sensible writer, in one of the early numbers of the Quarterly Journal of Foreign Medicine, as nugatory, imperfect, and tending to promote mischievous presumption, rendered more fatal, by inevitable ignorance, rather than a thorough knowledge of the true principles of the art. How, in fact, can any pupil be expected to meet the exigency of difficult cases of parturition, when left to his own resources, if the only instruction he has received in midwifery, is that which he has been able to pick up during his attendance to two or three courses of written lectures, or in seeing the simulated representation of labour on a leathern puppet?

"Instruments are indeed applied on this automaton, by way of tuition, and the pupil is told something about turning in cases of hæmorrhage, convulsion, flooding, or an arm presentation. But how is either operation performed in the lecture-room? The student pokes about the clumsy blades of a short forceps within the leathern manikin, in his endeavours to seize the ill concealed head of a fœtus; or, having introduced his right hand, agreeably to instructions, seizes, without any further direction, the first limb he can hook his finger upon, and drags it to view, when he perhaps finds, to his great horror, that the limb is the corresponding arm; or, if he has been fortunate enough to bring down one of the pelvic limbs, the next which he has drawn forth has been the other arm."

The second section of our author is an important one; it is dedicated to the description of various forms of the forceps, their indications, and the manner of applying them. No instrument appears to have undergone so many real or supposed improvements since its formation, as the short forceps. It would seem, indeed, to have been invented as much to try the ingenuity of the practitioner, as for the relief of suffering humanity. There are few gentlemen who have devoted any portion of their time to the teaching of midwifery, who have not found it necessary to invent an instrument of their own; so that we have almost as numerous a list of short forceps as there have been teachers in the art. It is most amusing to hear some teachers and practitioners talk of what they are pleased to term their inventions and improvements. One gentleman lengthens the shanks, another makes some alteration in the lock, a third enlarges the fenestræ, and a fourth contrives a new joint; and all these changes are, of course, considered as so many valuable improvements.

The forceps in general use in this country, is a combination of Smellie's and Levet's; the former possesses only a single, the latter a double curve, whereby it is better adapted to the state of the passages than the single curved pair. Our author very properly gives the preference to the double curved forceps; and when it is applied according to rule, and by a competent person, it can be used with perfect safety to the linings of the pelvis. In the hands of an ignorant practitioner, Smellie's instrument, or the single curved forceps, is more easily applied than the double curved pair; for it is not so necessary to determine the actual position of the head, because either blade may be introduced first, indiscriminately, and almost at random. Whoever will take the trouble to place Smellie's instrument upon the cranium, will find, not only that it cannot embrace it by so many points of contact as the double curved pair, but that the points of the single curved blades, during certain evolutions, are so projected beyond the head, that they must make injurious pressure upon the urinary bladder or rectum.

In applying the double curved pair, however, it is indispensable, in every case, to determine the actual position of the head, which, as its peculiarities may be obliterated by pressure, is occasionally difficult to be ascertained. The double curved instrument must be so introduced, that the points of the blades shall be applied over the ears, and that the convex margins shall be placed in the hollow of the sacrum before the extraction of the head through the outlet is attempted, as otherwise much mischief may be done to the linings of the pelvis.

Dr Davis objects to the French forceps, chiefly upon the principle of their affording too much power to the practitioner, and this is our own conviction also. Were we to form our opinion of the appearance of French females, from the aspect of this weapon, we should certainly consider them to be descended from a race of giants; for, in truth, this instrument is more fit to be employed upon the body of some of the most powerful of the brute creation, than that of a human being. The forceps of Dr Haighton, from their great length, and the consequent power with which they can be used, are fully as objectionable as that of the French; while, from their being single curved, they possess the same fault as the instrument of Smellie.

This brings us to speak of the author's common forceps, which, we are informed, is a combination of the English, French and German instrument. To give the author's description of this contrivance would be as tiresome as useless; suffice it to say, that the principal improvements are the elongation of the shanks, by which the lock of the instrument is completely removed from the external parts, and the enlargement of the fenestræ, to enable the bladder to embrace by a greater number of

points of contact. As to the elongation of the instrument, whereby the lock is removed from the parts of the patient, this will certainly relieve us from every apprehension of including any portion of the "maternal structures" in the lock; but, to counterbalance this advantage, its additional length adds to its power, and renders it almost as dangerous a contrivance as the French forceps. Dr Davis tells us, that its length may be from $11\frac{1}{2}$ to $12\frac{1}{2}$ inches English. If the latter, we are enabled to say from experience, that it may be applied with perfect ease, in all the labours usually referred to the long forceps, and consequently, that, in ordinary cases, it possesses far too much power. With respect to the alteration in the fenestræ, this change must make the blades far too wide, and, in a pelvis of rather small dimensions, render their introduction difficult or impossible. Of the truth of this assertion we have a half confession from the author, who found it necessary to invent a pair of forceps, with one blade *wide* and the other *narrow*, merely because we are certain that he cannot, except pin a very capacious pelvis, apply his common forceps without much exertion, and consequent injury to the "maternal structures." On the whole, then, Dr Davis, instead of bringing the forceps to perfection, has brought it to imperfection; therefore, his ingenuity does not diminish a shade of our confidence in the instrument that has been recommended and employed in this city, for many years past, and which we think preferable to any contrivance of the kind hitherto presented to the profession. And we must also add, that we are still so antiquated in our notions, as to give the preference to the forceps which is not furnished with a joint. It forms a more secure instrument; and as it wants the joint, it will afford less opportunity for entanglement of the soft parts. The advantages said to result from an instrument with a jointed right-hand blade, may be very easily obtained, when we are about to introduce it, by bringing the breech of the patient close to the edge of the bed, or by raising it from the bed by a thick pillow. An observance of either of these directions will obviate every inconvenience that might arise to *young practitioners*, from the handle of the right-side blade coming in contact with the bed,—the only primary cause that we are aware of, for the suggestion of a joint.

The next forceps described by Dr Davis, is one with blades of unequal breadth; *i. e.* the one blade corresponds with those of our author's common forceps, and the other with those of Osborne's. This contrivance is recommended by the Doctor, under circumstances of "particular conformations of the maternal pelvis," *not the fœtal pelvis*, and "certain inconvenient positions of the child's head." As the author, for the sake of convenience, or from inability, has not thought proper to explain what these particular conformations and inconvenient positions are, we shall attempt to

assist this apparent desertion of his usual ingenuity. As to the inconvenient positions, we do not know of any, in a pelvis of tolerable formation, which can require any other instrument than the forceps of Johnston or Osborne, or the lever of Lowther. And with regard to particular conformations, sometimes in females of general rachitic disposition, owing to trivial distortions of the lumbar spine, the brim of the pelvis is contracted towards one side. In rickety females also, sometimes the *brim*, instead of presenting an oval opening, is of a triangular shape. Under these circumstances, the *symphysis pubis* projects more outwards, and there is less space between the rami of the ischia and pubis; or, in other words, the pubic arch is more contracted. In such cases, we are certain that the broad blades of our author's instrument could not be insinuated upwards over the ear, at the contracted side of the pelvis, or at the pubis, and that forceps with narrower blades might be required. We think, therefore, that the instrument of Johnston or Osborne deserves the preference, as, from its blades being narrower, it may be used under any circumstances where forceps are at all available.

There are in fact, no bounds to our author's ingenuity, for in page 42, he describes a third pair of forceps with blades of unequal length; and in page 43, we have a description of a fourth pair of forceps, which we are told is a modification of the third pair. If midwifery were to be considered by the London College of Surgeons, as a part of the surgeon's education, and that our author were to be one of the examiners, God help the candidates, for we are sure not one in ten of them could remember all the Doctor's contrivances. The third pair, we are told, is to be used where the "face is directed to the right and left sides of the pelvis respectively." We ask, cannot the instrument of Johnston or Osborne be used in similar positions of the head? We can, from ample experience, answer in the affirmative, and, therefore, what is the utility of multiplying these resources, except to show the fondness of our author for instruments, or to display his mechanical powers? Might not the surgeon as well have one amputating knife for the right arm, another for the left, and a similar number for the lower extremities; or might not the dentist direct a particular extractor for the molar teeth, according as they belonged to the right or left sides of the face, or to the upper or lower maxilla?

The fourth pair of forceps, or modification of the one last spoken of, is said to be useful, "in cases of arrest or suspension of uterine action, where considerable benefit might be derived from a very moderate amount of mechanical assistance." We again ask, may not the forceps already so often recommended be used under similar circumstances, or may we not have re-

course to the lever of Dr Lowther? We can, from no limited experience, affirm that they may be resorted to with equal effect and safety; and, moreover, that no person of unbiassed mind can peruse this part of the author's essay, without being convinced of the justness of the charges we have brought against him in a former page.

Although we have hitherto found it necessary to enter our dissent against many of our author's suggestions, yet, in his indications for the use of the short forceps, we are happy to find so complete an accordance in our mutual opinions. In the fourth indication, Dr Davis very properly observes, that "cases of head presentations are the exclusive objects of treatment by forceps," and this is our own opinion also. In this country, some teachers recommend the forceps to be used in cases of breech presentation; and by Smellie, and on the continent, they are directed to be employed in cases where the head is retained in the pelvis after the extraction of the body. In reference to the first order of labours just specified, we can state, that we have lately had an opportunity of using the blunt hook, in a case where the breech was arrested in the pelvis. It was the woman's first labour; the child was very slightly injured, but suffered little in consequence. The crotchet was applied with facility over the bend of the thigh, by which we were enabled to command a very secure hold of the fœtus. We think this contrivance, therefore, preferable to the forceps, which, when placed upon the ilia, as directed, frequently slips off during the extraction; or even were they not liable to do so, the points of the blades must, from pressure, injure irreparably the parts on which they are applied. If we had a turn for mechanics, or were ambitious to have our names recorded among the manufacturers or inventors of instruments, we should be inclined to invent a hook with a wider curve than that of the blunt end of the common crotchet, which in large children especially, will be found far too contracted to embrace the whole diameter of the child's thigh, and consequently liable to occasion laceration of the integuments of the particular part, where the extremity of the instrument rests, as happened in our own hands. It would be an advantage, we think, that the piece of metal forming the curve, at least, instead of being perfectly rounded, similar to that of the crotchet, should be flattened. The hook should always be placed over the thigh directed towards the forepart of the pelvis.

As to the application of forceps in cases of retention of the head, after the expulsion or extraction of the body, we see no advantage that can result from this practice; but, on the contrary, a manifest disadvantage. Generally speaking, the head is retained from disproportion, *i. e.*, the head being too large from disease or overgrowth, or the pelvis being contracted at some point. To use forceps under these circumstances, would be

most injudicious, as laceration or contusion of the parts of the mother, with fatal compression of the fetal head, must be the result. Even in cases where there is no disproportion, and where the head is retained purely from mismanagement on the part of the medical attendant, pressure upon the funis during the time required to apply forceps, would in by far the greater number of cases, prove fatal to the child.

In speaking of the indications for having recourse to instrumental assistance, our author takes notice of *exhaustion* of the organs concerned in the functions of parturition. We perfectly agree with him, that, although this term is continually whispered in our ears by the patient, and her attendants in the *chambre d'accouchment;* yet no word is more frequently misapplied, no cause for instrumental interference of more rare occurrence. Our author's observations on this head are so judicious, and so much in accordance with our own, that he shall speak for himself. He observes, that, after "two or three of the first hours," the continual cry is, that "the patient is greatly exhausted, whilst, after the lapse of twelve or twenty hours, it often becomes a duty of no easy performance to the practitioner, to support the spirits and calm the fears, both of the patient and her attendants." Again, our author observes, "experience proves, that the efforts of labour are required to be exerted with extraordinary vigour, and for a long time, in order to produce a state of the agents of parturition, even approaching to what might deserve the name of exhaustion. It is impossible to state any particular time, for the accession, in any individual case, of such a condition of the constitutional powers, as would properly admit of the application of this epithet to it; as the fact could not be determined, without reference, in every single case, to the previous strength of the woman, to the vigour and frequency of the parturient efforts, to the form of the pelvis, and to the condition of the soft parts concerned in the process, with many other circumstances."

The degree of suffering which a female in the enjoyment of a moderate share of good health can support during parturition, under proper management, is sometimes incredible. Every practitioner of any standing in the profession, must have witnessed cases, where individuals have been two or three days in severe labour; and where the fetus was expelled without artificial assistance, and without any unpleasant symptom supervening. We can state a remarkable fact, viz. that we have never seen an unfavourable symptom manifest itself, after the use of the crotchet in any case, although, under those circumstances, the sufferings of the patient are, in most instances, allowed to be much protracted, in order to confirm the necessity for so formidable a proceeding.

Exhaustion of the parturient organs may be more frequently referred to some previous state of the subject, to diseases of the uterine system, to accidents and mismanagement during labour, than to any exertion in the parts immediately concerned in the process. No cause more frequently produces exhaustion than anxiety and officiousness. Young practitioners, from being occasionally unable to discriminate when their constant attendance is required, have been known to sit with their patients, for hours together, unnecessarily. This assiduity leads the sufferer to suppose, that the process is coming very near a crisis; and her ideas not being speedily realised, anxiety, exhaustion, and diminished energy of the expelling organs ensue. Whereas had the practitioner merely paid an occasional visit, until parturition was far advanced, the patient would naturally infer that her sufferings were not sufficiently urgent to require his constant attention; her anxiety would, therefore, be less, and the action of the uterus would continue undiminished in power.

Some practitioners have also been known, in cases where uterine action has become less powerful, or nearly suspended, to order their patients out of bed, and to make them traverse their apartment, supported by assistants, with a view to excite the uterus to more powerful efforts, a line of conduct, which, in too many instances, has only produced a greater degree of exhaustion. The more rational conduct, under such circumstances, would be, not only to procure rest for the patient by an opiate, and suffering her to remain in bed, but to endeavour to restore the energy of the prostrate organs, by soothing language, mild nourishment, and simple cordials: For, when the linings of the pelvis have not suffered violence during the previous part of the process, or when they are not exposed to injurious pressure from the head, there can be no pretext for interference, or, in other words, for accelerating the delivery.

Under the head of Difficult Parturition, from rigidity of the os uteri, &c. page 94, we cannot help noticing a case which, we think, savours too much of the marvellous, and betrays, from one or two circumstances attending it, rather a degree of credulity on the part of our author. The case is copied from the New-York Medical Repository, vol. i. p. 323. Dr Archer, the medical attendant, states, that he was called to a patient, who, from the os uteri possessing the feel of a thick, rigid, cartilaginous ring, was in labour for three days, notwithstanding the free use of the lancet and other powerful remedies. That the evening, subsequent to his being sent for, the os uteri still continuing undilated, the whole uterus, with its contents, was forced through the *os externum*. In this alarming state of matters, Dr Archer made three incisions in the neck of the uterus, each two inches in length, and the fetus was soon afterwards

expelled. We are told, that *there was no one present but a midwife*, and that the incisions *were neither attended by pain nor followed by hemorrhage.* Had any other competent person, besides Dr Archer, been present, would this case have been recorded as one of protrusion of the whole gravid uterus and its contents, or as one in which the membranes of the ovum only were excluded entire? Is it at all credible that an organ, so sensible and extremely vascular as the uterus, could be incised, without being attended by pain and hemorrhage. This case does not inspire us with any great opinion of Dr Davis' penetration, and only reminds us of a transatlantic newspaper report, wherein it was stated that the wife of a Greenwich pensioner had produced a child deficient of the same limb with his sire, and even had a bandage round it when born.

In the chapter appropriated to the use of obstetrical instruments on account of malpositions in the child's head in the cavity of the pelvis, page 153, our author observes, that the difficulty in labours, where the face is directed towards the fore part of the pelvis, and ultimately falls under the arch of the pubis, must be ascribed to "want of due correspondence between the long diameter of the fetal head, and the outlet of the pelvis." To us this explanation appears, at most, but partial, and very imperfect. We should say that the difficulty is as much owing to want of due correspondence between the diameters of the head and brim, as between those of the head and outlet. When the face is directed towards the pubis, no part of it, on account of its expanded surface, and the incompressibility of the bones composing it, can insinuate itself through the pubic arch; so that, literally speaking, we have, in such cases, the whole of the head confined within the walls of the pelvis,—a position which must not only resist the transit of the fetus, but also aggravate the sufferings of the mother, from the pressure to which the linings of the pelvis are exposed. When the vertex, however, presents towards the fore part of the pelvis, it is enabled, from its diameter being less than that of face, and from the bones, of which it is formed, being compressible, to insinuate itself considerably through the arch of the pubes, from which it results, that as the whole head is not confined within the pelvis, there is less pressure on its linings, and the sufferings of the mother are also diminished.

We have already extended our observations to such a length, that we are compelled to pass unnoticed a number of the chapters in this section, which, although void of novelty, interspersed with a few absurdities, bombastic and useless profusion of words, contain, nevertheless, some useful information, and exhibit considerable research.

In the third section, under the head of General Observations in some of the more practical points of instrumental midwifery, we are furnished with a very elaborate account, from the practice of different individuals, of the proportion of forceps cases to those of natural or unassisted labours. Our author considers this chapter an important one, but for our own parts, although we are ready to acknowledge, from the great research which it displays, as well as from its accuracy, that it is somewhat interesting, yet we cannot see its extreme utility. Records of this kind, however numerous or accurate they may be, are not at all likely to be acted on in cases of protraction or difficulty; for, as contrariety of opinion has always been a prominent feature in the character of physicians, and will be so to the end, so every practitioner will entertain different ideas as to the necessity of using the forceps; he will therefore act according to his own judgment, and hence the discordance in the practice of different individuals similarly circumstanced.

In this country, at least, females, in all ranks of life, with few exceptions, are, indeed, most averse during parturition, from artificial interference of every kind, and this feeling, conjoined with that sacred regard for decorum, and the delicacy of their patients, so generally entertained by British practitioners, will prevent the forceps being abused to any extent.

In the 5th section, under the head of embryotomy operations, in cases of extreme distortions of the pelvis, our author introduces his *chef d'œuvre* or new obstetrical power, termed *Osteotomist;* and from what we have said, in a former page, we consider ourselves bound to give a full description of it.

"This expedient consists in a power, by which any portion of the fetal skeleton, presenting at the brim of a contracted pelvis, may be broken down into small fragments of about half an inch in diameter, with the most perfect impunity to the structure of the parts of the mother concerned in the operation. As far as I know, it is an example of a new application of mechanical power, combining the principles of a punch and a pair of scissors. The whole instrument is made of solid and well tempered steel. Its cutting ends are worked into two long and fenestrated oval rims of unequal size, but of nearly equal strength. The smaller is of a size to enter into, and to fit closely within, the parietes of the larger. The mutually adapted parts of each, being formed into a continuous oval edge, they become competent, when brought together, and firmly applied to their object, to exert a prodigious power, on a portion of bone placed within their grasp. The handles are of great length in proportion to the parts anterior to the joint; and, being of sufficient strength to be perfectly inelastic and inflexible, their power must be deemed equal to the full length of their leverage, multiplied by the muscular force employed in using them.

" I have often, out of curiosity, and to shew the extraordinary power of this instrument to my pupils, made large breaches into strong ribs of beef, by cutting out of them a succession of pieces. Having a power like this in reserve, it is evident that the employment of any inordinate force of attraction with the crotchet, may, almost in all cases whatever, be happily and certainly avoided. The extreme breadth of the broadest oval rim of the osteotomist, is precisely three quarters of an inch. I may, therefore, take it for granted, that wherever there may be sufficient space to admit of the introduction of this instrument, together with the point of an index finger, to feed it with successive purchases of bone ; it will be practicable to effect, and therefore prudent to attempt, the delivery by the natural passages. There are few pelves, even in large collections of distorted ones, with superior apertures so small, as not to furnish from between an inch and an inch and a half of space in the direction of their conjugate diameters ; or, at least, of antero-posterior diameters across some part of their brim.

" If, indeed, I am not greatly overvaluing the power of this instrument, it will not only enable skilful operators to effect deliveries in cases of moderate distortions, with more facility to themselves, and proportionally less danger to their patients, than heretofore ; but it will also have the effect of reducing, almost to zero, the necessity for having recourse to that last extremity of our art, and the forlorn hope of the unhappy patient, the caesarean operation. In this country, it is well known, that, with one exception, the caesarean section has uniformly failed in the more important part of its object, that of preserving the most valuable life of the mother ; while in France and Germany, where it has been most frequently performed, its fatality, however variously reported by its friends and foes, has been universally acknowledged to have greatly exceeded in frequency its happy results."

The osteotomotist is creditable to the inventive genius of Dr Davis, but, like every other discovery, its merits are greatly overrated. For, whatever the " New Obstetrical Power" can accomplish in London, and under the immediate direction of its inventor, we are prepared to say, that, in our hands at least, it has fallen far short of the great power ascribed to it. We have not, it is true, tried it on fetal skulls, but we have put it to the test of experiment on beef-ribs, which it certainly could not cut, and, indeed, it was not without some difficulty that it effected a breach in strong pasteboard !

As we cannot be expected to rely on the extravagant notions promulgated by our author regarding the supposed utility of the " New Obstetrical Power," it would be of importance that some unprejudiced person should determine the smallest space in which it can be developed, so far as to enable the operator to apply it upon the margin of the breach effected in the cranium. Allowing that the diameter of the largest oval of the instrument is three quarters of an inch, as our author states, it fol-

lows as a matter of course, that an additional quarter of an inch must be allowed for its development, thus requiring an aperture of a full inch in diameter. As the Doctor's powers of invention have failed in imparting life to the osteotomist, to enable it to act *per se*, we are recommended to introduce the index finger to feed it, which will require at least a space of three quarters of an inch in addition for what must be allowed for the "New Power." And, as neither the finger, nor any other part of the body, is possessed of any particular adhesiveness, and as *no purchase can be used by one finger*, unless accompanied by something to act as an opponent, it is quite evident, that, to enable us to use the osteotomist with any effect, it must be accompanied by two fingers to "feed it." For these reasons, we consider an opening of two inches and a quarter short diameter, as the smallest space in which the *New Power* can be developed, without risking the inclusion of some portion of the "maternal structures," so that the applicability of the "New Power" has been most extravagantly overrated. We therefore think, that the sensible part of the profession will have as much faith in the "New Power reducing to zero," or, in other words, almost superseding the necessity for performing the cæsarean operation, as they have had in Dr Osborne's account of Sherwood's case, which, to use the most delicate phrase, none but a silly character can believe. Although we are not at all disposed to agree with our continental neighbours, in granting that every patient who has not a space of two inches and a half Parisian from sacrum to pubis, shall become the subject of the caesarean operation; yet, we are clearly of opinion that it should be adopted, where the short diameter of the brim is only two inches, or when the index, middle, and ring fingers, placed side to side, cannot be introduced through the brim of the pelvis; and that the employment of neither old nor "New Power" we are yet acquainted with, can be attended with less risk to the "maternal structures," than the section of the abdominal and uterine parietes. When our author can shew to any three impartial judges in the kingdom, that his "new power" has in any case superseded the painful necessity of the caesarean section, *certe erit nobis magnus Apollo*, and we shall assuredly be among the first to proclaim his merits, and to propose that he shall be rewarded by the profession at least, if not by his Sovereign, in a manner no less honourable than M. Sigault of remarkable memory.

In alluding to the caesarean section, Dr Davis observes, "In this country, it is well known, that, with one exception, this operation has uniformly failed in the more important part of its object, that of preserving the most valuable life of the mother, whilst in France and Germany, where it has been most fre-

quently performed, its fatality, however variously reported by its friends and foes, has been universally acknowledged to have greatly exceeded in frequency its happy results." God knows, this expedient, the most appalling of our art, has been very fatal indeed, in all parts of the world; but there surely can be little necessity for exaggerating its melancholy results. In saying that Mr Barlow's operation has been the only successful one in this kingdom, has our author forgot the case detailed in the 5th vol. of the Edinburgh Medical Essays; or does he mean to deny its authenticity; or, because the operation was done by a midwife, is it beneath his notice? We deny, however, that continental records *exhibit* a greater number of fatal than successful cases, and we refer our readers, with confidence, to the following works,—Memoirs of the Royal Academy of Surgery of Paris; Baudelocque's Midwifery; 2d vol. Edinburgh Physical and Literary Essays; Hull's Defence;—the numerous periodical publications of this country and of the continent; and some of those transatlantic. No one can read these works, without being well convinced, that, if the caesarean operation has been most fatal in this country, some practitioners have, in very many instances, themselves to blame. For, in the works referred to, cases are to be found where the operation terminated successfully under the hands of female operators; where females in the gravid state experienced lacerations of the uterine and abdominal parietes, and recovered; and where nature herself effected a breach in the parietes of the uterus and the abdomen, pushed the fetus through the rent, and the parent lived. *Had the operation been performed at the commencement of labour*, would not the patient have a better chance from an incised than a lacerated wound? That the operation has not been done in time, in far the greater number of cases which required it, is now universally acknowledged; to this cause, therefore, and to the morbid condition of the patient, when operated on, and not to the knife, its great fatality in this country must be ascribed.

In pursuing our train of thought on the subject of the caesarean operation, we had almost forgotten to notice Dr Davis's crotchets. To say the least of them, they are very formidable; but we think them safe and effectual.

A word in parting. Whoever reads this work, will see at once that the main object of our author in writing it has been to promulgate the improvements that he has made in "instrumental midwifery." We think the medical world would have been much more indebted to Dr Davis by making these improvements known, through the medium of the periodical press, than by publishing an immense extravagant volume, which must be considered as a tax upon the profession. To the

younger part of our members, who are prone to operate and experiment on human life, we certainly cannot recommend it, for in their hands it would be a dangerous engine; and, as to the senior part of the profession, we think it quite unnecessary to caution them, for their own good sense must teach them, to confide but little in the "New Powers."

IV. CHEMISTRY.

ART. XXVII.—*The Elements of Medical Chemistry.* By JOHN AYRTON PARIS, M. D., F. R. S., &c. &c. (Continued from p. 178.)

THE second part of Dr Paris's work contains the history of the individual chemical substances. From the elementary manner which he has thought fit to employ, we are precluded from dwelling minutely upon the individual subjects which it embraces. We cannot, indeed, but express our regret, that he has not adopted a different plan. The medical student has ample sources of information, so far as regards the mere principles of chemistry; and it was the more unnecessary for Dr Paris to devote his pages to such a purpose, since the information which he has given upon that subject is not extensive enough to supersede the use of other works of elementary instruction. He should have taken a knowledge of the principles for granted, and showed their application to every point that might interest the medical practitioner. A medical chemistry executed on this principle, would supply a blank in our libraries, for which we should be truly thankful,—a blank which certainly has not been filled up by Dr Paris.

In speaking of the different substances present in the atmosphere, Dr Paris observes:

"The human body is greatly influenced by the degree of aqueous vapour present in the atmosphere, and few subjects connected with meteorology are more interesting to the medical philosopher. How far the origin of various epidemics may be connected with it, future observations may probably discover. Increased humidity is ever attended with the sensation of cold, because the air is thus rendered a better conductor of caloric; while, at the same time it checks the perspiration, since the atmosphere, when in a state of saturation with water, is incapable of carrying off the insensible perspiration as it is formed. For the same reason, the watery exhalation from the lungs is diminished, and various morbid effects may be thus produced. Under these circumstances, the perspirable matter is condensed upon the surface; hence we appear upon these occasions

to perspire greatly upon the slightest exercise, whereas the cuticular discharge is at such times absolutely less; and since it must cease to be a cooling process, we experience a sensation of heat greater than the state of the thermometer will explain. The extreme dryness of the atmosphere of Chili will furnish us with a number of facts in farther proof of the justness of these views. Dr Schmidtmeyer informs us, that, in the climate alluded to, notwithstanding the very high temperature, the perspiration passes off so entirely in the insensible form, that, during the most violent exercise, it might be doubted whether there existed any perspiration at all.

" It has been stated, that a certain portion of carbonic acid is present in the purest air; but, in cities and apartments in which persons have breathed, or combustible matter has burnt, this proportion is exceeded, and its excess must be regarded as injurious. Sulphurous acid may also be occasionally present in an atmosphere which has been impregnated with the vapour of burning coal; the air of London contains it, and to its presence we may probably attribute the well known fact of iron oxidizing with such rapidity. A quantity of carbon, in a state of extremely minute division, is also diffused through the air of our city, which cannot but prove injurious to the health of the inhabitants. The presence of such adventitious bodies is amply sufficient to explain the effects which are well known to attend a constant residence in the metropolis, as well as to account for the feelings of relief which its inhabitants experience from occasional migration."

To these remarks is subjoined the following interesting note:

" The unhealthy appearance of plants growing in the metropolis affords, in itself, a sufficient indication of the air's impurity.' Evelyn has the following curious remark upon this subject: ' That the smoke destroys our vegetation, is shewn by that which was by many observed in the year 1644, when Newcastle was besieged, and blocked up in our late wars, so as through the great dearth and scarcity of coals, these famous works were either left off or diminished, divers gardens and orchards planted even in the very heart of London (as in particular my Lord Marquis of Hertford in the Strand; my Lord Bridgewater's, and some others about Barbican) were observed to bear such plentiful and infinite quantities of fruits, as they never produced the like before or since, to their great astonishment; but it was by the owners rightly imputed to the penury of coals, and the little smoake which they took notice to infest them that yeare.' "

Dr Paris has devoted a few pages to the important subject of respiration, and we quote the following as a specimen of his mode of treating it.

" In examining the changes which the constituent parts of the air have undergone, we shall find that the proportion of azote is much the same, but that a quantity of oxygen has disappeared, equal in volume to that of the carbonic acid formed; and since this

acid has been shewn to contain exactly its own bulk of oxygen gas, it is very evident that all the oxygen which disappears in respiration, must have been expended in forming this acid; and that no portion of it can have united with hydrogen, as Lavoisier supposed, to form water. But in this place the important question arises as to the source of carbonic acid, whether the oxygen be absorbed through the coats of the vessels, and thus displaces an equal quantity of ready formed carbonic acid, which may be supposed to have existed in the blood; or, whether this acid be not rather generated by the union of the inspired oxygen with the carbon of that fluid? Lavoisier, in his first memoir, proposes these two hypotheses, without deciding in favour of either of them; but in his later papers he adopts the latter, and the most enlightened chemists and physiologists of the present day have sanctioned the decision. The only change, then, that has been satisfactorily proved to take place in respired atmospheric air, is the removal of a certain quantity of oxygen (its nitrogen being wholly untouched), and the substitution of a precisely equal volume of carbonic acid gas."

The reader will here recognize the general conclusions of Allen and Pepys. It is not a little surprising that Dr Paris should not have noticed the labours of one of the most ingenious and accurate physiologists who have yet studied the phenomena of respiration. We allude to the work of Dr Edwards, "De l'influence des Agens Physiques sur la Vie," published in a separate form in 1824, but the essential part of which had been previously read before the Royal Academy of Sciences of Paris, and published in detached essays in the Annales de Chimie et de Physique.

Experimenters have differed concerning the relation of the oxygen which disappears in respiration, and the carbonic acid evolved. Priestley, Lavoisier and Seguin, observed the disappearance of more oxygen than could be accounted for by the carbonic acid produced. Sir H. Davy found that the bulk was very nearly equal. Crawford, Menzies, and Messrs Allen and Pepys conclude, that the carbonic acid formed is precisely equivalent to the oxygen absorbed. The inquiries of Dr Edwards tend to reconcile these differences. He has proved that the quantities of the two gases are not always equivalent to each other; in general, more oxygen disappears than can be accounted for by the carbonic acid, so that a certain quantity of the former seems to be actually absorbed into the system. He demonstrated this fact, by placing animals for a certain length of time in a known quantity of air, taking care that the respiration was free and natural. In the course of this inquiry he ascertained the singular fact, that the quantity of oxygen which cannot be accounted for by the carbonic acid, varies with the animal. Thus, when a puppy was the subject of experiment, the proportion of the absorbed oxygen to the whole of the oxygen

which disappeared, was about 1 to 3. In a frog the proportion is as 1 to 3.4; in the guinea-pig it is as 1 to 5; in the yellow-hammer as 1 to 5.6; and in some individuals of these species, the amount of oxygen absorbed is almost inappreciable. Besides reconciling the discrepancies of preceding investigators, Dr Edwards has thus laid open a new and interesting field for investigation, as it is probable that the proportion of oxygen and carbonic acid is not only variable in different animals, but will be found to vary in the same animal under different circumstances.

Dr Edwards has been equally successful in studying the relation of the nitrogen inhaled to that contained in the expired air. It has been generally supposed, since the publication of Allen and Pepys's experiments, that nitrogen is altogether passive in respiration, its bulk being neither increased nor diminished by passing through the lungs. But though this was the opinion of Allen and Pepys with respect to natural respiration, the conclusion of former experimenters was very different. Some of them, as Priestley, Davy, and Henderson, observed a diminution of nitrogen, and in the experiments of Berthollet and Nysten, there was an actual increase in the quantity of that gas. Dr Edwards has shewn, that all these opinions may be correct. In nearly all the animals upon which he experimented, the proportion of nitrogen in the expired air, during summer, was greater than in that which was inhaled. In some, indeed, the difference was so trifling, that he could not but assume it as unchanged; but, in others it was too great to admit of doubt, occasionally equalling the whole bulk of the animal. Similar results were obtained till the end of October, when he observed an actual diminution of nitrogen to occur, which continued through the whole of winter and beginning of spring. The quantity absorbed was variable, being sometimes almost inappreciable, sometimes, on the contrary, nearly amounting to the bulk of the animal. There are two modes of accounting for these phenomena. According to the first, the diminution of nitrogen is owing to absorption, and its augmentation to a direct evolution of that gas from the lungs themselves, only one of these functions going on at the same time. According to the second, there is always both an absorption and an evolution of nitrogen. When these two functions are equal, neither increase nor diminution in the bulk of the respired nitrogen can ensue. When the former prevails over the latter, less nitrogen will be found in the expired air than in that which was inspired. But if the latter prevail over the former, an opposite result will occur. Dr Edwards is of the second opinion, and advances various ingenious experiments and arguments in proof of it.

This brief account of a few of the interesting facts ascertained by Dr Edwards, will supply some of the deficiencies of our author, and, at all events, serve to shew that the process of respiration, according to the most recent experiments, is not precisely as he has represented it.

The last extract which we shall make upon the subject of respiration, is the following:

"The proportion of oxygen consumed by respiration appears, moreover, to be influenced by the nature of the diet. The quantity of carbonic acid emitted at each expiration, and consequently that of oxygen inspired, varies at different periods of the day, and probably also in different individuals; it appears at its maximum during digestion, and at its minimum in the morning, when the stomach is empty, and when no chyle is flowing into the blood. Dr Prout has shewn, that fermented liquors and vegetable diet diminish the proportion of carbonic acid, and that the same thing happens when the system is affected by mercury. The influence of vegetable diet in diminishing the call for oxygen, has been very satisfactorily proved by the observations of Mr Spalding, the celebrated diver, who found, that whenever he used a diet of animal food, he consumed in a much shorter time the oxygen of the atmospheric air in his diving-bell, and, therefore, he had learned from experience to confine himself to a vegetable diet. The same effect he found to arise from the use of fermented liquors, a fact in apparent contradiction with the observation of Dr Prout; and he therefore drank nothing but water while he followed his profession. The same fact is well known to the Indian pearl-divers, who always abstain, for many hours before their descent, from every species of food. We perceive, therefore, that in certain morbid states of the pulmonary organs, a spare vegetable diet should be strictly enforced."

In the remainder of the second part, Dr Paris has given an account of the metals, their oxides, and the salts they form with acids, the whole of which we must pass over in silence, for reasons that have been already mentioned. Nor can we dwell longer on the third part; for we have been unable to detect any thing in his remarks on vegetable chemistry, which is not discussed at equal, if not at greater length, in the common works of elementary instruction. With respect to the subject of animal chemistry, Dr Paris expresses himself thus:

"The student might now proceed to the consideration of animal chemistry, but as the present volume has already exceeded the limits assigned to it; and as the extent of this branch of science would require several hundred pages for its investigation, I have determined to defer it until a more favourable opportunity will enable me to treat of the characters and composition of animal products, and to shew the changes which the fluids of the body undergo during the influence of disease."

So that Dr Paris has composed "Elements of Medical Chemistry," consisting of 586 octavo pages, and has contrived to defer the discussion of the most important part of his subject till another opportunity.

ART. XXVIII.—*Jahres Bericht über die Fortschritt eder Physischen Wissenschaften von* JACOB BERZELIUS, *aus dem Schwedischen übersetzt von* Dr F. WÖHLER, 1825.

Yearly Account of the Progress of Physical and Chemical Science, by JAMES BERZELIUS. Translated from the Swedish, by Dr F. WÖHLER, 1825. (Continued from p. 180.)

"MITSCHERLICH has continued his important researches on the relation between crystalline form and composition. He has collected additional facts in proof of the position, that one and the same body may crystallize in two ways, giving rise to crystals which cannot be referred to the same primary form." He has adduced sulphur as an example. This combustible dissolves readily in sulphuret of carbon, and when the liquid is allowed to evaporate slowly, crystals of sulphur are deposited in the form of an octohedron, with a rhombic base, or some modification of it, similar to those found in the mineral kingdom. But when he fused 50 pounds of sulphur in a crucible, and allowed the liquid mass to cool under circumstances favourable for crystallizing, crystals of half an inch in diameter were procured, which were wholly different from the preceding, as their primary form was an oblique prism with a rhombic basis. He obtained crystals of phosphorus in the form of a regular dodecahedron, by making a solution of that substance in the sulphuret of phosphorus by the aid of heat, and allowing it to cool.

Berzelius states, that M. Fuchs has discovered the presence of iodine in a rock-salt found near Hall in the Tyrol. The salt is dissolved in water, and the solution, after the muriate of soda has been removed by crystallization, contains muriate of magnesia and hydriodate of soda.

"Vogel has found a peculiar saccharine principle in the leaves of celery (*Apium graveolens*), which proves to be mannite, the saccharine principle of manna. The juice, after being expressed from the fresh leaves, was boiled, and the scum which formed upon its surface removed. It was then evaporated to the consistence of syrup, and boiled with successive portions of alcohol; the solutions

were filtered while hot, and deposited crystals of mannite on cooling. A hundred weight of the fresh leaves yielded a pound of the purified mannite, which possessed the laxative virtue and all the other properties of manna. Vogel found likewise a volatile oil in these leaves, which is the cause of their odour, a fat oil, a gelatinous principle, which he compares to bassonia, gum, extractive, and a considerable quantity of nitrate of potash. Hübner had discovered mannite in the roots of celery previous to the analysis of Vogel, but mistook it for common sugar united with extractive."

Berzelius gives an easy method of separating stearine from elaine, on the authority of M. Peclet *. It is founded on the property of stearine to be converted into soap, even in the cold. The oil is mixed with a concentrated ley of caustic soda; the mixture is to be well stirred, warmed slightly, and then passed through a linen filter, upon which the stearine remains in the form of soap. The elaine separates spontaneously from the alkaline ley, and may be easily decanted off. The experiment does not succeed with rancid oil.

" In the account of last year, page 168, I mentioned the observation of Vogel and Robiquet, that the oil of bitter almonds, as well as that from the *Prunus laurocerasus*, had the property of absorbing oxygen from the air, and of forming a volatile crystalline acid, which was not poisonous. Stange has made out the nature of the change by a series of well conducted experiments. He has shewn that the new acid is the benzoic, and appears to have decided the question as to the cause of the poisonous quality of the oil. He agitated some volatile oil of the bitter almond with a solution of pure baryta, and then distilled off the oil. It was colourless, but possessed the taste and odour of bitter almonds, though no trace of prussic acid could be detected in it. It had no poisonous action on cats or rabbits, even in a large dose, and was rapidly converted into benzoic acid on exposure to the air. The prussic acid was detained by the baryta."

We apprehend the odour of prussic acid is one of the most delicate tests of its presence which we possess; and the flavour of the distilled oil was doubtless owing to a small quantity of the acid having passed over with it, enough for acting upon the nerves of taste and smell, though too little for being poisonous.

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* Ann. de Chimie et de Physique, N. 22.

V. MEDICAL JURISPRUDENCE.

ART. XXIX.—*Remarks on the subject of Medical Jurisprudence.*

THE prospects of this study have assumed a more encouraging aspect since our last, and in a manner that claims particular notice. In our preliminary article to this department, allusion was made to the circumstance of the medico-legal chair in this University being the only source of instruction, in medical schools, throughout the empire. We further alluded to the effort then making by Dr Smith, to establish the cultivation of the subject in London. When about to commence his second course of lectures, the Managers of the Royal Institution of Great Britain desired that they should be delivered in the theatre of their establishment, under the great advantages that have been enjoyed by other lecturers under that roof, and which have been productive of the best effects.

Last year, Dr Smith drew the attention of the audience frequenting the public lectures at the Royal Institution, by giving a general outline of the subject of medicine, as applicable to national purposes; in doing which he was successful in conveying an impression of the importance of this study to some who may hereafter be instrumental in raising it to its due rank in the systems of professional education.

Notwithstanding the increasing facilities of improvement offered to the profession, their apathy in this matter is just cause of reproach. We speak not of the students, for they are not supposed to choose for themselves, and, indeed, are not allowed to do so, in regard to the course of their education. There is no corporate body which has the power of prescribing in this matter, in the least degree solicitous about the utility or reputation of the profession, as dependent on medical witnesses; and there is an obstacle in the way of their becoming so, which promises to be fatal to any improvement in this respect, until the present generation shall sleep with their fathers: the obstacle arises from the apathy that the examining officials possess in common with the rest,—and this may be fairly charged to their incapacity to hold examinations on a subject of which they know nothing themselves. They therefore leave the trial of a candidate, in regard to the information he ought to possess relative to his professional duty, in a court of justice, to the examiners of such courts; and we should like to see the man, student or practitioner, who would not rather go before the

authorities of Lincolns-inn-fields, or Apothecaries Hall, fifty times, ere they would enter the witness-box once. Nothing would be more easy than to remove the obstacle in question; but we fear it never will be done till the time alluded to, unless (which is more than probable) the attention of the Legislature be drawn to the subject.

Should this happen, and we look for nothing more confidently, we will venture to predict corporate resistance. In his individual capacity, there is not, we presume, a single member of the profession who will not acknowledge the importance of the study, and the desirableness of attending to it; but such as hold or profess this opinion, if in the councils of the corporate bodies, will not be backward in advancing objections to making the study a part of professional education, exacting attendance on lectures, and submitting candidates for professional certificates to examination. The real reason we have probably assigned already; but the ostensible plea will be some one, or all perhaps, of the following:—

1. It would be laying an additional burden on the student, whose time is inadequate to the business already prescribed! The basis of this plea is too firmly established, as far as the London schools are concerned (and we have them at present in view), to permit us to contest it; and if it be allowable to suppose that abuses in medical education do exist, here, we should say, is the source of most of them. The student, solicitous to be let loose upon society, under the sanction of the heads and authorities of his profession, directs his attention to the emergency immediately before him; and as soon as the grindstone can put him in order, he *goes up*, reserving the acquisition of solid knowledge till "a more convenient season,"—or trusting that, when plunged in the vortex of practice, he will acquire experience, which is far better. How far these contingencies may be realised, we need not inquire. But the confusion and hurry which characterize the ordinary arrangements, or rather derangements, of the medical schools of the metropolis, do not arise from the burden laid on the student, being absolutely too great; but from its relative pressure, through want of adequate means, that is, sufficient time to bear it. To rectify and remove this objection, is in the power of those themselves who would urge it. With it probably would be joined the plea of additional expence; but this requires not a word of refutation.

2. It might be stated that the means of study are wanting,—there are no teachers. The reply is obvious: appoint teachers; or, if you announce the intention of promoting the respectability of the profession, and the welfare of the public, in this way, there will soon be an abundant supply

3. We should not be surprized to hear it alleged, that there is no occasion for lectures on a subject that may be sufficiently studied in books. We might perhaps make short work with this argument, by saying, that, if it proves any thing, it will prove too much. For, if forensic medicine can be taught by books, we must insist that several other parts of medical knowledge are accessible in the same manner. What occasion can there be for lectures on the Theory of Medicine, while so many books are at the command of the student? The same exception may be extended to the Practice of Physic; and, were it worth while, we might include other branches, in which the business of the teacher is confined to oral instruction. But we shall venture a step beyond this, and demand that Anatomy and Chemistry shall likewise be taught no longer in our schools by lectures from the chair, and that the student be confined to the reading of books in his apartment. Here we have the objection in full absurdity. These sciences are of so practical a nature, that reading alone never can teach them. The judgment and memory must be instructed through the medium of the senses; and information, acquired without the aid of demonstration and practical manipulation, will not be defective only, but also dangerous. Many parts of the study we are now advocating, require to be taught by practical exemplification, and cannot be properly taught without it. It involves one important subject, which is almost a distinct science of itself, and can nowhere, but within the department of state medicine, be fully discussed; and it is a subject that had better be omitted perhaps, than attempted without experimental elucidation. We allude, of course, to toxicology.

4. The last objection we shall notice, is one for which there has been some specious foundation. It was the custom (in London at least), after the first introduction of medical jurisprudence to the notice of the profession, for several lecturers to profess the comprehension of this subject (as far as it bore relation to their particular province) within their ostensible course. Thus, in Chemistry, the detection of certain poisons was termed Medical Jurisprudence; and the same was the case with Materia Medica *. The obstetric teacher professed to include "some points of medical jurisprudence," and so on. Now, it is a possibility, though rather a preposterous one, that it might be

* A learned physician who fills the chair of Materia Medica in one of the great London Hospitals, stated as an objection to the admission of a medico-legal teacher, that, "as the articles comprised in the materia medica contained medical jurisprudence, any other lecturer would interfere most seriously with him!" Is it possible that a metropolitan professor could be found so utterly unacquainted with the scope and multifarious objects of this science, as to assert that they are contained in a few articles of the materia medica? Sed literæ scriptæ manent.

urged that a separate course of lectures on the science collectively, is superfluous, since it is, or may be, taught piecemeal in the above manner. To render the success of any such plea utterly hopeless, we shall anticipate the following counter representations.—Medical jurisprudence can never be taught in this manner; *because* it depends upon peculiar general principles, distinct from those of ordinary medicine, which no one *fragment*, according to the scheme in question, can possibly furnish an opportunity of exhibiting,—and without which these teachers can neither fully understand what they are about, nor convey clear conceptions to their pupils;—*because*, further, were the attempt to display these principles *fairly* made, the teacher would be under the necessity of introducing a formidable digression from the proper business of his province, without the means of supplying sufficient illustration from the scanty materials properly belonging to him;—and *because*, in every instance that we are acquainted with, where the proposal has been actually carried into execution, the instruction has been meagre, and absolutely erroneous; of which many glaring proofs have been displayed by the pupils, when afterwards called upon to give evidence in the public courts.

If, after this, the argument should be still maintained, we shall treat it as we have done the former, and demand that the Practice of Physic be taught in the same way; for the one is the application of medical knowledge to a certain practical purpose, as well as the other, and might also be taught as part of the province of other professors;—or, perhaps, we should turn round upon the Professor of Materia Medica, and tell him he may retire, as we find his duty is practicable in the same way. When treating of the ailments of the body, the other teachers will describe the remedies in their proper places. In like manner we may have the good fortune to discover that there is no occasion to teach anatomy in a separate and systematic manner, the practical professors of physic, surgery and midwifery will include the "*points*" belonging to their proper business:—and it is indeed impossible to say to what a fine system of simplification medical education may, upon this view of it, be carried.

Of these anticipated objections, not one presents the slightest claim to serious consideration, but the first; and really for this, the remedy is so easy, that it reminds us of the story of Sir Isaac Newton, who had planted his chair so close to a large fire as to scorch himself. Having summoned his servant, he ordered him, in a tone far above his usual pitch, to take away the fire; in lieu of which inconvenient operation, the man submitted, whether removing the chair to some distance might not answer the purpose. Sure we are that the respectable bodies, who have

the power of directing the course of medical education, will never allow that the student is burdened by having to learn more than he ought, or more than is necessary. It would be well for many did they learn a little more, even in addition to that enlargement of their studies for which we are contending. But how is this possible? Their whole time is occupied with what is already prescriptive. We do not wish the fire to be removed, but to give them an opportunity of removing to a greater distance from it. Furnish them with another year at school, and shorten for this purpose, if you do not abolish, the necessary term of apprenticeship. That will meet the exigency of the case to all intents and purposes.

Hardly any of these remarks will apply to the course of medical education in the school of Edinburgh, where the time spent, and the liberal routine observed among the students, form a striking contrast with the hurried system of grinding pursued elsewhere; but we cannot expect that the authorities in London will, at the present juncture, feel disposed to make even obvious improvements.

We had intended in the present Number to have submitted some observations upon the recent turn that the jurisprudence of infanticide has taken, not only among ourselves, but apparently (if we may judge from one recent instance) in France also. There a woman confessed having concealed her illegitimate pregnancy, having been delivered in solitude, having crammed the infant's mouth and throat with paper, and having deposited it among ashes; all this she acknowledged in the usual way of interrogation, as performed upon prisoners in the courts of that country, and all this was corroborated by the testimony of witnesses. *Whereupon* the jury found her *not guilty;* and she was discharged, no doubt as a warning, not to bring living bastards into the world, in a country where there is no demand for population.

Something very like this appears now to be encouraged in this country. We are very glad that the condemnation of poor girls to an ignominious death, for having been seduced from their innocent and reputable condition, through advantage being taken of their best affections, and then abandoned by a villanous deceiver to all the horrors of infamy, misery, and ruin; we say we are glad that this condemnation has ceased, and that this (of all others the greatest) misfortune is no longer amenable to the laws. It is not, however, owing to any alteration in our code; but depends upon a milder and a juster view which is taken of these cases in the courts, than that which is retained in the statute-book. While we sincerely rejoice in the fact, we are dissatisfied in no small degree with the *modus operandi.* As long as medical witnesses went into court merely for the

purpose of repeating the unfounded statements, that there was no reliance to be placed on the physiological marks of vitality in a new-born infant, there might have been great propriety in charging a jury that there was no evidence of the child coming into the world alive. But of late, since the doctrines on this point have been more accurately examined, and the facts established; since medical men have been (some of them) undeceived, and others roused to the performance of their duty in something like a proper manner; the consequence has been, that, when attempting to instruct the court and jury in the truth of the matter in question, as soon as information is offered which makes against the prisoner, by shewing that the child was born alive, the witness is rebuked (and in some cases it has been done with severity, and even to his injury) by the judge. The well-intended, though superficial and mistaken, opinions of William Hunter are quoted in the face of better information; they are, in fact, produced as conclusive evidence in favour of the prisoner, with the merits of whose case they may not have the most remote connection.

Could we suppose this article to meet the judicial eye, we would venture most reverently to submit, whether the court would permit the witness to give evidence in the name of W. Hunter on any body else;—whether such a mode of proceeding be allowable, according to the rules of evidence;—whether the opinions of W. H., or of any dead man who may have left a printed paper behind him, are to be received as oracles for the guidance of our tribunals, and the refutation of witnesses, who are giving testimony upon oath? Should they be confuted with a loose *ipse dixit*, as found in the pages of a tract, which (according to law) is no document, and which the profession at large consider mistaken on the very points, the bench relies upon? This is an important question affecting the general administration of justice. We should be glad to see the law altered, if the judges consider it severe; but we protest against sacrificing the reputation of honest and intelligent professional witnesses, in order that a culprit may escape.

PART III.

MEDICAL INTELLIGENCE, FOREIGN AND DOMESTIC.

I. MEDICAL JURISPRUDENCE.

ART. XXX.—*Researches to determine the marks of Vitality in new-born Infants.*

Dr Joseph Bernt, Professor of Medical Jurisprudence in the University of Vienna, has published *Centuria experimentorum docimasiam pulmonum hydrostaticam illustrantium*, (4to, Vienna 1824), in which he seems to have made some advances towards the removal of the ambiguity which still hangs over that almost daily occurring duty of the profession, in cases of suspected child murder, in which we are legally called upon to decide, "*whether the lungs of the infant body before us have ever been inflated with air during life.*" Notwithstanding all the captious objections of Mauchart, Bohn, F. Hoffmann, and Heister, on the Continent, and their repetition afterwards by the Hunters in Britain, it still continues to be generally admitted by the public, and is indeed substantially correct, that a lung which has once been inflated with air, by the usual process of respiration, not only floats in water, but so high in it, as also to be able to bear the weight of the heart attached to it; while a fetal lung, which has not undergone this process, as generally sinks to the bottom. This is also the opinion of Dr Bernt, and confirmed by a hundred experiments in the work before us. There every now and then occur instances, however, in which circumstances modify this general law in so absolute a manner, that the case becomes completely reversed; and a lung which had breathed regularly for weeks or years, sinks readily to the bottom; whilst that which had been subjected to this process, ascends to the surface. It is needless here to inquire into the causes of such anomalies; they are abundantly explained in all books of medical jurisprudence, and are, in general, of such a nature as easily to escape the routine practitioner, who may, consequently, by the errors they induce, be innocently led to yield protection to the guilty, or even, under careless judges, to sacrifice an unfortunate mother, guilty of nothing, perhaps, but concealing the inanimate evidence of her shame, to the imperfection of science, or of his own private opportunities of acquiring information.

It is, on all accounts, therefore, desirable that some means should be devised of adding to the certainty of medical evidence on this interesting question. In Germany every petty provincial town has a chair for medical jurisprudence, and an office of *staats medicus*, generally occupied by scientific and conscientious persons. In learned Germany, however, even in Vienna itself, Professor Bernt informs us, that his colleague, the Professor of Public Medicine, so late as the year 1821, had made four repeated mistakes of this kind, in immediate succession; having officially asserted that four different children had died before birth, when the legal evidence ascertained "*luce clarius*," that they were born alive, and had lived some hours! The method of Dr Bernt, in addition to a diligent attention to the other phenomena, consists essentially in ascertaining the *relative gravity of the lung*. Thus, if the lung of a new-born

child, which generally weighs about an ounce and a half, *sink in water*, he observes how many grains, acting over a pulley, will just raise it to the surface. A lung of an ounce and a half may generally be raised by half a drachm. If they *swim in water*, he notices how much it takes to sink them. In lungs (if, corresponding to the above, they weigh, when inflated, about six scruples more), he notes how many grains are necessary to sink them to the bottom. About 160 grains may be necessary for this purpose. He repeats these experiments with the heart attached to the lungs; and the whole of them a sufficient number of times to ascertain the relative proportion of these in an average way; and we have thus, he thinks, a steady hydrostatic test, sufficient to distinguish the steady relation of the inflated and fully circulating lung, to that which has never been fully permeated either by blood or air, from the incidental, and consequently unsteady, conditions which occasionally seem to vitiate the general principle. Dr Bernt enjoys the advantage of having the bodies of all the still-born children of the Lying-in Hospital of Vienna at his disposal. The *real state* of these, before death, can always be ascertained; and the doubts which might originate in other cases, are avoided in his results.

It was in pursuing these researches that Dr Bernt hit upon an observation, which, if correct, will establish the distinction of an inflated from an uninflated lung, upon the most solid foundation. He seems himself to consider it as an almost infallible test.

The circulation of a child undergoes an extensive revolution the moment it breathes, and the placental subsidiary action becomes suspended. The blood arriving at the liver by the umbilical vein, is withdrawn from that organ, which ought to be rendered so much *lighter* by its abstraction; and the lungs, by the blood of the ductus arteriosus flowing through them, must have become proportionally heavier. The mere examination of these circumstances, in a new-born child, will go far to determine whether it has breathed; but the test which he chiefly rests upon, is the appearance and situation of the opening of the *foramen ovale. This hole, in a child which has never breathed, is exactly in the bottom of the fossa ovalis; but, as soon as the child has breathed, the aperture becomes turned towards the right;* in *several weeks*, it has ascended *very high;* and, in the adult age, is found to have arrived at the *summit of the oval.* In other words, from the moment respiration commences, the aperture of the foramen ovale begins to travel from the lower extremity of the oval hole towards the upper, proceeding from *left* to *right:* and the degree of advance it has made, becomes an index of the existence and duration of the respiratory process. This semi-revolution of the aperture around the centre of the axis of the foramen ovale, after birth, so important in an anatomical and physiological, as well as docimastic point of view, is, in some degree, hinted at by our countryman Dr Humphry Ridley, Obs. de Cord. Embryon. Lugd. 1750, at p. 180–4; but afterwards more fully developed by Dioboldt, in 1771. The reason of the phenomenon, Dr Bernt conjectures to be the contraction of the muscular fibres of the *isthmus Vieussenii;* but we are ourselves inclined to attribute it rather to the diminished resistance offered, after birth, to the stream of blood projected from the right ventricle, and the consequently increased resistance to that which is simultaneously sent from the left. It is known, that accumulation in the right ventricle generates also an accumulation of blood in the right auricle, and even in the venae cavae which open into it. As long as this state continues, the lower cava, aided as it is by the placental contribution, will be predominant; and, ascending from below, will keep the valve of the oval hole from adhering to the edges, from above downwards; or, in other words, will preserve the aperture at the *bottom* of the fossa. But, as soon as the aortal resistance is withdrawn from the right side of the heart, by respiration, and the placental supply, from the lower cava, by obliteration of the cord, the equilibrium becomes almost perfect between the ascending and descending cava, in the infant; and the centre of their joint impulse must be brought up near, or beyond, the central diameter of the oval hole. The valve, however, can only be displaced gradually in this direction; and, accordingly, it is not before the

adult age, that the aperture arrives at the top of the valve. This ascent is much assisted by the preponderance of the left ventricle, which, reacting against the whole resistance of the circulation, lessens the angle of position of the axis of the right heart to the axes of the hollow veins, and thereby the line of pressure upon the oval hole, *in the direction upwards.* At all events, whatever is the theory, the fact is most valuable; and we consider both the docimastic methods above adduced, as affording simple, easily practicable, and therefore most valuable, additions to the jurisprudential part of our profession; and to that part of it which is never exercised without great hazard of the reputation, and certain laceration of the feelings, even to the most conscientious practitioners.

II. PRACTICE OF MEDICINE.

ART. XXXI. *A Treatise on the Methods of Investigating Diseases of the Chest, &c. Translated from the French of M. Collin.* By W. R. RYLAND, M. D., small 12mo, London, pp. 67.

Introduction to the use of the Stethoscope, &c. By W. STOKES, M. D., Edinburgh, small 8vo, pp. 224.

IT is useless in the tenth year of this important discovery, to detain our readers with a discussion of the real and imputed merits of the stethoscope. On this occasion, we shall merely add, that when we find men like Doctors Collin, and Ryland, and Stokes, devote their talents to useful abbreviations like the present, at a price which can hold them out no hope of adequate remuneration, we ought always to contemplate their labours with gratitude. On this account, we think that we cannot do our readers more true yeoman service, with regard to these volumes, than in explaining briefly their purport and style of execution.

The two small works in question are both edited in a form adapted to the pocket; a piece of convenience equally desirable for the student and practitioner. The hospitals, the natural theatres of auditive diagnosis and practice, are often situated at a very great distance from the dwellings of both classes; and, till this moment, the strife between the different authors on auscultation seems to have been, which of them should write the most completely incommodious book for the purpose of immediate consultation. The indications of the stethoscope form almost a new science; and this, again, depends on another, which is new enough to most practitioners,—an immense field of discovery in the morbid anatomy of the viscera, which it has pleased the modern French to denominate pathology. It is no doubt the best way for the physician to carry this, like other learning, in his head; but if he has not found time for that, for the space large enough to hold it, and many, we doubt not, never will, the next best way is to take it along with him in his pocket, where possibly the hospital pharmacopeia, and Cooper's *Vade mecum*, may have gone before. We can recommend, for this purpose, each or both of the two little works before us, as faithful, even elegant, abstracts, of the doctrines of the day, in all that regards the sensible indications of visceral disease, whether *auditive*, *visual*, or *tactile*.

ART. XXXII. *Beschreibung und abbildung knolliger Aus wüchse der Hande und Füsse des Lorentz Ruff.* Von Dr J. B. J. BEHRENDS. Fol. Frank. 1825.

Description, with Delineations, of a Tubercular Growth upon the Hands and Feet. By Dr BEHRENDS. Frank. 1285.

FOR the perusal of this interesting case of *ichthyosis cornea*, we are indebted to the politeness of Dr Monro, Professor of Anatomy, and President of the

Royal College of Physicians of this metropolis, who indulged us with a sight of a presentation copy of the posthumous publication of Dr B. The five lithographic representations of the immense morbid productions upon the hands and feet of Lorentz Ruff, the subject of the brief memoir accompanying, are tastefully executed, and do great credit to the Frankfort press.

As in the well known case of Anne Jackson, and the "*porcupine men*," the disease of Lorentz Ruff appears to have been congenital; at least the patient himself could remember no period at which his hands were in a natural state. The tumours had, however, increased very remarkably since his third year. He was a large, healthy, muscular man, who had never suffered any other disease, except the small-pox, in his seventeenth year, and once a violent diarrhoea. The small-pox had left deep impressions.

The preternatural growths might be divided into claw-like nails, and rounded protuberances. They both affected the site of the nails; but also the inner surface of the feet and hands were of a grey colour, smooth, dry, sensible to every irritation, easily bleeding, and seeming sensible for several days, if the little scales were loosened, or the part was otherwise irritated by pressure. This sensibility was considerably influenced by the weather. In dry or clear calm days it disappeared, but became exasperated, almost beyond endurance, when it was wet and windy. The flexion of the fingers and toes was completely prevented by these tumours, which were almost immovable, and communicated to the finger a feeling like that of soft horn, or of a large wart. It does not appear that any treatment had ever been attempted Indeed, the principal peculiarity of the disease, is the acute sensibility of the tumours; and the immense magnitude to which the feet and toes, hands and fingers, had grown, in consequence of the affection. It throws scarcely any light on the pathology of this obscure degeneration of the integuments; and Dr Behrend has very wisely abstained from speculation. A learned friend of ours suggests, that painful eminences, in the present case, belong more properly to the genus *verruca*, than *ichthyosis*; but the claw-like elongation of the nails, and the smooth surface of the immense tubercles, some of them fully *three inches* in length, seems rather to vindicate the terminology of Dr Behrends.

III. PRACTICE OF SURGERY.

ART. XXXIII.—*Dr Seckendorf's Case of Fatal Obstruction, from a Contortion of the Sigmoid Flexure of the Colon.* Leipsic, 1824.

G. R. Schmidt, a blacksmith by profession, had been subject to inguinal rupture from infancy, which he usually kept up by means of a bandage. On the 28th of March 1824, or thirteen days before his death, in the Leipsic Hospital, after eating rather largely of potatoes, he became affected with alvine obstruction and vomiting, complaints to which he had long been subject; and, as these did not yield to bloodletting, or in the manner formerly observed, he was brought into the hospital, upon the tenth day of the disease. Examination proved that there was no hernia, no fever; the pulse was contracted; the skin cold. The warm bath, croton oil, tobacco injections, a bougie introduced into the rectum, and finally, a pound of mercury, were all tried in vain. The man sunk upon the third day. Dissection exhibited the following rare cause of death, from strangulation of intestine.

On opening the abdomen, the transverse colon was seen to have left its natural situation, and descended into *the right iliac region*: from whence, making a sudden turn, it ascended towards the *left* hypochondriac region, and again descended from that position to the *left* iliac region, where, in the natural state, it constitutes the sigmoid flexure. The part from the left hypochon-

driac region to this point, was enormously inflated, at least to six inches in diameter, appearing considerably thicker than the thigh of the individual. At the point where the colon passes into the rectum, the intestine was contorted upon its axis, and the part which belonged to the right was turned to the left side; and the mesocolon appeared twisted like a rope around it. The caliber of the intestine was completely obstructed by this contortion; so that neither excrements, nor air, nor mercury, had been able to pass. The latter, indeed, was found immediately above the twist, neither changed in quality, nor diminished in quantity, although it had been in the system for nearly ten hours before death. The expanded part of the colon had a livid colour; and the only remaining vestige of disease was a few slight traces of inflammation in the intestines, yet without the least indication of effusion having taken place in any part whatever.

As this idea of the intestine twisting upon itself, so as to produce fatal or dangerous disease, is, by many, treated with ridicule, as a vulgar error, and certainly does not occur in the valuable pathological compilations of Baillie and Monro *tertius;* and, particularly, as the candle introduced seems to have passed the stricture, which it is evident, therefore, would have admitted a tube of the same size, we have thought it our duty to place the case, which seems well attested, in a prominent point of view. For, though at the *time* this patient was brought to the hospital, it is possible that the left and distended extremity may have already suffered irreparable injury, or absolute disorganization; yet, if the convolution had been known of earlier, there can remain little doubt on any rational person's mind that it might have been relieved. The air distending the colon might have been allowed to escape by the same kind of tube as is sometimes used in tympanites; active injections might have been introduced into the intestine by the same means; and the passage being now open, it is natural to presume that a cure would have followed.

ART. XXXIV.—*Historia Membri virilis feliciter extirpati.* Auctore CAROLO AUGUSTO KUHL, M. D. and P. D., in Chirurgiae Universitate Lipsiensi Professore. Lips. 1824.

Successful case of Extirpation of the Penis. By Professor KUHL. 4to. Leipsic. 1824.

THE subject of this case was a robust day-labourer, of fifty-four years of age, who, in the exercise of his usual employment of throwing up mud-hedges, had struck the handle of his spade against the part, but without occasioning much pain at the time or afterwards. A small tubercle, however, appeared on the prepuce in the course of a few weeks, which, after a variety of applications, at length assumed the appearance of that colly-flower degeneration, which surgeons generally refer to carcinoma. The whole member now appeared like one large botryoidal mass of a globular form, and drilled with nineteen or more holes, through all of which the urine issued, during the evacuation of the bladder, as from the spout of a watering pan. Professor Kuhl seems astonished at the appellation of *Spanish mitre* bestowed upon this appearance of the disease by a surgeon to whom it was shown; but the venereal, as well as gonorrhea, are often named the *Spanish malady* in the Netherlands; and the surgeon, no doubt, considered the present affection as a variety of phimosis. None of the other organs of generation were in the least affected; and though the patient, a labouring man of fifty-four, was rapidly sinking under an aggravated form of hectic, yet he confessed to Dr Kuhl, "se saepissime ejectionem seminis nocturnam esse passum," which phenomenon, though frequent before and during the disease, never appeared once after the extirpation. This patient was at the same time affected with three ruptures, an inguinal and a crural on the right side, and a crural on the left. The same collyflower excrescences had begun to appear upon

the mons veneris, with frequent hemorrhagy from them all: ulceration of the perineum, scrotum, and thighs.

The man being placed on his back, with a silver catheter introduced into the urethra, Dr Kuhl made two semilunar incisions intersecting each other at the margin of the pubis above, and the anterior and superior third of the scrotum below, comprehending the whole of the diseased parts not merely excoriated. A few small arteries required compression. The insulated parts were then laid hold of with Broomfield's hook by an assistant, and were cautiously dissected out by the operator, till the bones of the pubis appeared covered merely by periosteum; only a small quantity of blood flowed, though many small arteries required compression, and a few the ligature. The wound was then simply dressed with lint, and a bandage, and in a month the patient was well. He enjoys the most vigorous health, and even some degree of renovation, being able to bear the same degree of labour as in his prime. Dr Kuhl attributes this remarkable circumstance to the absorption of the semen, which, previously to the operation, occasionally escaped as above. This opinion is somewhat favoured by the appearance of the testicles, which continue very large and vascular; but as we often see similar examples of augmented energy, from the amputation of other members, when preceded by hectic, we are unwilling to admit a *special* explanation of a *common* effect.

We know not whether the mode of practice in the following report, though defensible, would be much approved of by many of our British surgeons.

"Evening (of the day of operation.)—Pain severe; constant flow of urine, which, with profuse sweat, does not permit the patient to rest. Let him have *Dover's powder.*

"Next day, no change."

IV. ANATOMY (Human).

Art. XXXV. *Darstellung des Gehirnes, des Ruckenmarkes, und der Sinnes werkzeuge, &c.* Von Dr August Carl Bock, 8 mit funfzehn Kupferfafeln. Leipzig, 1824. Pp. 419.

This publication forms part of the General Anatomical Encyclopædia of the same author, who is already well known to the cultivators of minute anatomy, by his splendid work on the fifth pair of nerves. It consists of a volume of copper-plates, in quarto, representing the brain, spinal-marrow, and organs of the senses, with an octavo volume, containing concise but minute descriptions of these parts, and references to the engravings. There is also a plate representing the usual divisions of the surface of the body, with a very full description in which the deep-seated parts corresponding to these different divisions and remarkable points of the surface are carefully pointed out—a useful study for the anatomist and surgeon, which has not hitherto met with the attention it deserves. The plates are very carefully executed, and in a style sufficiently fine to suit the purpose intended; they are fifteen in number, containing in all a hundred and one representations, partly original, and partly borrowed from Reil, Meyer, Loder, and the elegant works of Soemmering, on the organs of the senses. Most of these we have compared with the engravings they are taken from, and can answer for the accuracy with which they are copied. Those that are original, are from preparations made by the author, of which we are informed he has a valuable collection. The greater part of them represent new and very instructive sections and views of the organs in question, and their relations to the parts surrounding them. The descriptions are clear, and easily intelligible, and include many of the recent discoveries in this department of anatomy; amongst others, the author has described, with some slight variation, and endeavoured to represent in fig. 12 of Plate 7. the connection between the sympathetic, the vidian, and glossopharyn-

geal nerve, in the tympanum, lately discovered by Jacobson of Copenhagen, the existence of which, though denied by Rilian and others, has been admitted by Lobstein in his recent work on the sympathetic nerve. It is obvious that extracts from a work like the present would be altogether misplaced. We shall, therefore, conclude this short notice, persuaded that if the rest of the work equal the specimen now before us, it will form an useful and important aid in the acquisition of anatomical knowledge.

V. BOTANY.

Art. XXXVI.—*NOTICES of BOTANICAL WORKS.*

CURTIS'S BOTANICAL MAGAZINE.

No. 468.—T. 2621, *Hymenocallis littoralis* δ, Herb. Nat. of Mexico.—T. 2622, *Colutea nepalensis*, Sims. Nepal.—T. 2623, *Anthericum sulphureum*, W. et K. Hungary.—T. 2624, *Euphorbia globosa*, Sims. Cape of Good Hope. A singular plant belonging to the genus *Dactylanthes* of Haworth—T. 2625, *Physalis viscosa*, L. Raised from seeds, either from Chili or Peru, by Robert Barclay, Esq.—T. 2626, *Asphodelus tenuior*, Marsch. v. Bieb. Nat. of Northern Caucasus.—T. 2627, *Gardenia florida*, L. var. *ovalifolia*. Cape of Good Hope.—T. 2628, *Ipomœa splendens*, Sims. East Indies.

No. 469.—T. 2629, *Nepenthes Phyllamphora*, Willd. the *N. distillatoria* of Loddige, but doubtfully of the *Hortus Kewensis* according to Dr Sims. Nat. of Cochin China, Ceylon, and the Molucca Islands.—T. 2630, *Melastoma villosa*, Lodd. South America.—T. 2631, *Saxifraga cuscutiformis*, Lodd. China.—T. 2632, *Campanula infundibuliformis*, Sims. Communicated from the Vienna Garden under the name of *C. lamiifolia*, which it does not prove to be.—T. 2633, *Phytolacca icosandra*, L. Malabar.—T. 2634, *Sanseviera longiflora*, Sims. Communicated by Lady Banks, but its native country not mentioned.

No. 470.—T. 2635, *Crinum strictum*, Herb. Said to have been brought from Ceylon.—T. 2636, *Crinum humile*, Herb. Another new species, brought from the East, but its exact country unknown.—T. 2637, *Hedychium carneum*, Carey, MSS. Calcutta.—T. 2638, *Cassia aversiflora*, Herb. Brazil. A new species.—T. 2639, *Habranthus angustus*, Herb. A new species from Buenos Ayres.—T. 2640, *Stenomesson curvidentatum*, Herb. Peru.—T. 2641, *St. flavum*, Herb. Peru.—T. 2642, *Pitcairnia albiflos*, Herb. Rio Janeiro.

In concluding our notice of this number, we cannot refrain from entering our protest against the unwieldy specific characters introduced by the pen of Mr Herbert. This gentleman's knowledge of bulbous plants we are in no way inclined to dispute; but his characters require very great reformation. Seven out of eight specific characters in the present number are, one with another, eleven lines in length; that of *Hedychium carneum* fifteen.

BOTANICAL REGISTER.

No. 131.—T. 941, *Mimosa pudica*, L. Brazil.—T. 942, *Camellia oleifera*, Abel. China.—T. 943, *Fuchsia arborescens*, Moc. et Sess. Mexico.—T. 944, *Kennedia cordata*, Lindl. New Holland. A new species.—T. 945, *Clerodendron lividum*, Lindl. A new species, native of China.—T. 946, *Ægiphila elata*, Sw. St Vincents.—T. 947, *Eucalyptus longifolia*, Lindl. New Holland.—T. 948, *Liatris intermedia*, Lindl. North America.

HOOKER'S EXOTIC FLORA.

Part 30.—T. 190, *Heliconia braziliensis*, Hook. A new species from Brazil.—T. 191, *Ruellia anisiphylla*, Wall. MSS. A new species from Nepal.—

T. 192, *Andromeda salicifolia*, Commers. A beautiful species, and most admirably figured; native of the Mauritius.—T. 193, *Abronia arenaria*, Menzies, MSS. A new species discovered by Mr Menzies on the coast of California.—T. 194, *A. umbellata*, Lam. This was also gathered in California by Mr Menzies, who made drawings of both species on the spot.

Part 31.—T. 195, *Thunbergia coccinea*, Wallich, MSS. A beautiful and ornamental climber from the East Indies, described by Dr Graham in the Edinburgh Philosophical Journal.—T. 196, *Isochilus graminoides*, Hook. Jamaica.—T. 197, *Pleurothallis ruscifolia*, Br. Trinidad.—T. 198, *Utricularia alpina*, L. A very beautiful species, native of the West Indies.—T. 199, *Solanum Anguivi*, Lam. Madagascar.

Part 32.—T. 200, *Crinum undulatum*, Hook. A new species from South America.—T. 201, *Glycine mollis*, Hook. A new species from the Island of Zanzibar on the east coast of Africa. Dr Hooker remarks, in a note, that this and *Glycine caribæa*, Jacq. belongs to the genus *Rhynchosia* of Loureiro and of De Candolle, in his *Prodromus*, vol. ii.—T. 202, *Pycnostachys cœrulea*, Hook. A new genus of labiate plants, from Madagascar.—T. 203, *Campuleia coccinea*, Telfair, MSS. Madagascar.—T. 204, *Aneilema longifolia*, Hook. Island of Zanzibar.

SWEET'S BRITISH FLOWER-GARDEN.

No. 35.—T. 137, *Erythræa aggregata*, Sweet. A new species from Germany.—T. 138, *Geissorhiza vaginata*, Sweet. A new species from the Cape of Good Hope.—T. 139, *Gentiana crinita*, Frœl. North America.—T. 140, *Salvia nubicola*, Wallich MSS. Nepal.

No. 36.—T. 141, *Tagetes tenuifolia*, Cavan. Mexico.—T. 142, *Erythrina crista-galli*, L. Brazil.—T. 143, *Lapeyrousia anceps*, Ker. Cape of Good Hope.—T. 144, *Asclepias verticillata*, Willd. North America.

GREVILLE'S SCOTTISH CRYPTOGAMIC FLORA.

No. 43.—T. 211, *Geoglossum viride*, Pers. A rare species, published for the first time as British.—T. 212, *Stilbospora profusa*, Grev. a new species; and *S. ovata*, Pers. New to Great Britain.—T. 213, 214, Both these plates are devoted to the illustration of *Phallus fœtidus*, a highly curious fungus.—T. 215, *Sphæria citrina*, Pers. Added to the British Flora by Captain Carmichael.

No. 44.—T. 216, *Polythrincium Trifolii*, Kunze. New to the British Flora. T. 217, *Agaricus radicatus*, Relh.—T. 218, *Actinothyrium Graminis*, Kunze. New to Britain.—T. 219, *Lichina pygmæa*, Agardh. In this plate is given a representation of the fructification and seeds, hitherto unknown.—T. 220, *Bangia calophylla*, Carm. MSS. A new and most beautiful minute plant of the order *Algæ*, recently discovered by Captain Carmichael in the Island of Lismore.

No. 45.—T. 221, *Lichina confinis*, Ag. The complete fructification of this *Alga* is represented for the first time.—T. 222, *Oscillatoria alata*, Carm. MSS.—T. 223, *Stromatosphæria undulata*, Grev. and *St. stigma*, Grev.—T. 224, *Polyporus Carmichaelianus*, Grev. A pretty species, with very minute pores like a honeycomb.—T. 225, *Thelephora sanguinolenta*, Alb. et Schwein.

LOUDON's GARDENER'S MAGAZINE and REGISTER of Rural and Domestic Improvements. 8vo. To be continued Quarterly.

The first number of this very useful work appeared on the 1st of January. Its object is "collect together some account of the various improvements which are constantly making in gardening, agriculture, and on landed estates; and to render them readily accessible to the practical gardener, land steward, and others concerned in country affairs." The specimen before the public is so respectably executed, that we have no doubt of its success and very extensive circulation. The reader will find in it much information relating to garden botany.

The work is divided into four parts. 1. Original Communications; 2. Reviews of works on Horticulture and Botany; 3. General Intelligence relating to Botany and Horticulture; 4. Advertisements connected with Farming and Rural Affairs.

REMARKS on the DEFOLIATION of TREES. By the Reverend JOHN FLEMING, D. D. F. R. S. E. &c. Read before the Royal Society of Edinburgh, Dec. 5. 1825.

Dr Fleming is of opinion that the "*duration of leaves*" has not been studied with sufficient care and precision. Linnæus, it is well known, divides them, in reference to their duration, into *decidua*, *caduca*, *persistentia*, *perennia*, and *sempervirentia*. Sir James Edward Smith considers a leaf merely as either *sempervirens* or *deciduum*.

Dr Fleming, taking into consideration the facts, that winter is not the proximate cause of the falling of the leaf in many trees,—that many leaves fall off long before the approach of winter,—and that others which have withstood its attacks perish with the warmth of spring,—proposes another mode of division. "Trees," he says, "in reference to the duration of their leaves, appear capable of division into three classes. In the first class may be included those in which the leaves cease to exercise their functions whenever the bud has been perfected. In the second, the leaves continue to exercise their functions until new ones are produced in the following season. In the third class, the leaves continue to exercise their functions for several years.

A leaf of the first class may be termed *Folium deciduum*. "Its principal function appears to be connected with the ripening of the bud, and, when this object is accomplished, the leaf changes colour and dies."

A leaf of the second class may be termed *Folium annuum*. "It exercises its functions until a new set of leaves be produced, and is then cast off in the ordinary order of seniority."

A leaf of the third class may be called *Folium perenne*. "Its duration is not influenced directly by the perfection of the bud, nor the new supply of leaves during the following season."

PRODROMUS PLANTARUM INDIÆ OCCIDENTALIS hucusque cognitarum, tam in oris Americæ Meridionalis, quam in Insulis Antillicis sponte crescentium, aut ibi diuturne hospitantium; Nova Genera et Species hactenus ignotas complectens. Digessit GULIELMUS HAMILTON, M. B. 8vo, pp. 67. London, Truttel & Würtz.

This is a very interesting and well got up little work, exhibiting a good deal of research and practical investigation. Mr Hamilton has proposed 14 new genera, and no fewer than 152 new species. We cannot help wishing he had entered into a few more details, especially respecting his new genera; but this probably was not consistent with his plan, and we are rejoiced to find that he looks forwards to completing a general Flora of the West Indies, than which few works of this nature are more wanted. We heartily wish him every encouragement and success.

VEGETABLE PRODUCTIONS of the Island of Madeira. By Dr H. KUHL.

A translation of the account of the vegetation of the Island of Madeira, by Dr Kuhl, has appeared in the 7th Number of the Edinburgh Journal of Science. The original article is contained in the "*Botanische Zeitung*," conducted by Dr Hornschuch.

Dr Kuhl and his companions remained only five days on the island, and therefore, he observes, they could not be supposed to obtain a complete knowledge of its botanical productions. They collected nevertheless, by great exertions, 224 species, and about 1000 specimens. The most striking peculiarity in the eyes of a stranger, is the entire absence of oaks, firs, birch, and willows. Dr Kuhl divides the vegetation into five regions. 1. *The re-*

gion of the Cacti, extending to 630 feet above the level of the sea. 2. *The region of the Vine*, reaching to an elevation of 2030 feet: the principal cultivation of the island lies in this region. 3. *The region of the Chesnut*, commencing at the height of 2030 feet, and reaching to about 2950 feet. 4. *The region of the Spartium*, terminating at 3920 feet. 5. *The region of the Heath:* this region extends to the summit of the *Pico Ruivo*, the highest point in the island, calculated by our traveller to be 5300 feet above the level of the sea. Dr Kuhl does not name all the genera he collected, but gives the relative proportion of the species in some of the most striking families as follows:

Filices, -	1 in 15	Cichoriaceæ,	1 in 23	Leguminosæ,	1 in 23
Gramineæ,	1 ... 11	Corymbiferæ,	1 ... 19	Caryophylleæ,	1 ... 37
Amentaceæ,	1 ... 111	Saxafrageæ,	1 ... 224	Malvaceæ,	1 ... 74
Euphorbiaceæ,	1 ... 111	Labiatæ,	1 ... 19	Rosaceæ,	1 ... 25
Umbelliferæ,	1 ... 56	Cruciferæ,	1 ... 23		

"Whence it appears, that the island is deficient in the northern families of the *Saxifrageæ*, *Amentaceæ*, and *Caryophylleæ*, in the first of these especially. It is poor likewise in the predominent families of the tropics, the *Euphorbiaceæ*, *Malvaceæ*, and *Corymbiferæ*, which latter are only in proportion of 1 to 19, but at the Cape 1 to 5, and in other countries of the equator 1 to 6. But the *Cichoriaceæ*, which belong to the temperate zone, are here very numerous."

An ENUMERATION of the SPECIES of EUPHORBIA growing in Germany and Hungary. By Dr J. Roeper. 4to, Gottingen. Pp. 68. 1824.

Under this modest title, we have received, through the kindness of its author, an excellent treatise on the genus *Euphorbia*, accompanied with three beautifully executed plates from his own drawings, which illustrate by numerous figures its germination and development. The whole has been rendered as perfect as possible, not only in the scientific department, but in embellishment of every kind. The subject is treated under the following heads. 1. *Nomen;* 2. *Locus systematicus;* 3. *Character;* 4. *Germinatio;* 5. *Radix, Caudex intermedius, Cotyledones;* 6. *Caulis, Folia, Rami;* 7. *Involucrum et Inflorescentia;* 8. *Flores masculi et Flos fœmineus;* 9. *Affinitates;* 10. *Divisiones;* 11. *Species.*

We cannot enter into an analysis of this work, but we recommend it warmly to the perusal and study of all our botanical readers.

PLANTES Rares du Jardin de Genève, par M. Aug. Pyr. De Candolle. 4to.

A valuable work has been commenced under the above title at Geneva. It is destined to be published from time to time, and to include figures of such plants as are new or imperfectly known. Two livraisons have appeared; the first contains six plates and twenty-one pages of letter-press, illustrative of *Pinus canariensis*, Buch.; *Nemopanthes canadensis*, D. C.; *Jussiæa longifolia*, D. C.; *Sesamum indicum*, L.; *Silene picta*, Desf. The second livraison we have not seen. The justly acquired celebrity of its author will be sufficient of itself to insure this interesting work a favourable reception.

On the RED SNOW of the Arctic Regions. By Professor Agardh.

Professor Agardh's memoir on this subject, is contained in the 12th volume of Nova Acta Acad. Nat. Curiosorum. It is a complete history of the substance called Red Snow down to the period at which it was written.

After alluding to several extraneous matters with which rain has been occasionally charged, the author proceeds to some historical details regarding Red Snow, which he says is very common in all the alpine countries of Eu-

rope. " De Saussure found it for the first time in the year 1760 on Mount Breven in Switzerland, and subsequently so frequently among the Alps, that he was surprized how such a phenomenon could have escaped the attention of other travellers, especially Scheuchzer. Ramond found Red Snow on the Pyrenees; and the botanist Sommerfeldt informed me he observed it in Norway."

" The Italian *Giornale di Fisica*, November and December 1818, contains some very interesting accounts of Red Snow which fell on the Italian Alps and on the Apennines, which we shall mention here, as they are less generally known. In March 1808, the whole country around Cadore, Belluno, and Feltri, was covered in one night to the depth of 20 centimetres with a rose-coloured snow. A pure-white snow fell before and afterwards, so that the rose-coloured snow formed an intermediate stratum. The same fact was recorded at the same time on the mountains of Veltelin, Brescia, Krain, and Tyrol. A similar one occurred at Tolmezzo in the Friaul, between the 5th and 6th of March 1803; and a more remarkable one still in the night between the 14th and 15th of March 1803, in Calabria, Abruzzo, Tuscany, and Bologna; consequently along the whole chain of the Apennines. On the 15th of April Red Snow fell on the mountain of Toual in Italy.

" From the above account, it is evident that this phenomenon is not unfrequent, and that the Red Snow discovered in Baffin's Bay, in 75° 54′ N. Latitude, and 67° 15′ West Longitude, by Captain Ross, derived the greater part of its interest from the celebrity of those botanists and chemists by whom it was so carefully examined; and it was the result of their examination that raised so many conjectures respecting its origin.

" According to Captain Ross, the mountains which were coloured by the Red Snow, are about eight English miles long, and about 600 feet in height. The Red Snow was found to penetrate in some places to a depth of 10 or 12 feet, and seemed to have existed long in the same state.

" This is all the information we possess relative to the Red Snow in its natural situation. From chemical analysis, however, some account of its nature might be reasonably expected. By this means, De Saussure had already ascertained the colouring matter of the Red Snow of the Alps to emit a smell when exposed to heat, like that of burnt vegetable substances; and this circumstance, together with distillation in alcohol, led him to draw the conclusion that the matter was of a vegetable origin, and perhaps the farina of some plant, although he could not particularize any plant with red pollen, nor conjecture how it could have been carried to so great an elevation.

" The Italian naturalists who examined the Red Snow we have already mentioned as having fallen in Italy, found it to contain siliceous earth, clay, and an oxide of iron, as well as a considerable proportion of some organic substance. Such also are the products of an analysis made by Sementini of a *shower of blood* which fell in Calabria; nor did Wollaston and Thenard, in their examination of the Red Snow brought home by Captain Ross, arrive at any other results, and the former suggested that it might contain the seeds of a moss.

" From the chemist this curious substance passed into the hands of the botanist. The celebrated Francis Bauer communicated a full description of it to Mr Brande, the Secretary to the Royal Society, for publication in the Journal of Science and Arts, No. XIV. Similarity in regard to form, as well as chemical analysis, induced him to conclude that the colouring matter was a fungus of the genus *Uredo*. He accordingly names it *Uredo nivalis*, and gives it a place near *Ustilago segetum* of Ditmar.

" Mr Robert Brown had, indeed, previously expressed his opinion that it might eventually prove an *Alga*, from its great resemblance to *Tremella cruenta*, Engl. Bot.; a fact which Mr Bauer does not seem to be aware of.

" Sprengel's conjecture, that it more nearly approaches *Vaucheria radicata*, Ag. seems to have less foundation than any other.

" In numerous examinations I have had occasion to make of the *Algæ*, the true nature of this substance has frequently occurred to me as a perplexing question; for, never having seen any thing with which it might be compared,

I could never find a satisfactory answer. The opinion, however, of Mr R. Brown, that it should be classed with the *Algæ*, always appeared to me the most correct."

Professor Agardh then proceeds to mention, that he examined specimens of the Red Snow put into his hands by Professor Berzelius, who had received them from Dr Wollaston: he was immediately convinced of its being an *Alga*. He ascertained, also, that the plant found on limestone rocks, and named *Lepraria kermesina* by Baron Wrangel, was the same thing. Some doubt, however, seems to arise in the mind of our learned author, towards the conclusion of his memoir, whether, after all, the colouring matter of the Red Snow may not be of an animal nature. After proving that it does not belong to other cryptogamic families, he observes: "It follows, therefore, that this matter must be either an *Alga* or an *Infusory Animal*. But I am not aware of any great distinction between them; for there occur objects which might be equally claimed by both. There are *Algæ* which produce *Infusoria*, and *vice versa*. Lastly, there are *Infusoria* which, at one period of their existence, are endowed with motion, and, at another, seem to pass into a state of vegetation."

"We may observe, in conclusion, that the colouring matter of the Red Snow is not without analogy among the *Algæ*. Every one is acquainted with a green pulverulent substance on shady walls in autumn, consisting of green globules, changing, according to circumstances, into *Oscillatoria muralis* or *Ulva crispa*. This is most like *Lepraria kermesina*. *Tremella cruenta*, Engl. Bot. (which must not be confounded with *Ulva montana*, Lightf.) has also a great resemblance to it: both are red, and consist of minute globules; but those of *Lepraria kermesina* are free, instead of lying in a gelatine. I have therefore introduced it into my *Systema Algarum* as a distinct genus, under the name of *Protococcus kermesinus* *."

In one respect we differ from Professor Agardh: we have never failed, in careful examinations, to detect at least a subjacent gelatine, on which the red globules rest. The plant, therefore, comes very near to the genus *Palmella*, and differs chiefly in the globules being superficial, instead of immersed in the gelatine. The red globules we have also observed to contain globose sporidia or granules, which sometimes escape in a mass, but oftener separately, leaving the membrane which contained them colourless, and so light as to float upon the surface of water. This will be found more clearly demonstrated in the 47th Number of the *Scottish Cryptogamic Flora*.

Notice regarding the *CERA DE PALMA*, brought from the Andes of Quindiu, by Messrs Humboldt and Bonpland.

In the Annales de Chimie et de Physique for July 1825, is a short notice of this remarkable substance by M. Boussingault. The palm which Messrs Humboldt and Bonpland have named *Ceroxylon Andicola*, furnishes a combustible matter in considerable abundance, which in the country is called *Cera de Palma*. In order to obtain it, the trunk of the palm is grated, and the produce boiled in water. The *Cera de Palma* rises to the surface, and is then collected and dried. It is obtained from the Indians in the form of small yellowish-white cakes, which are porous, very friable, and soften under the heat of the hand. In general aspect they resemble some calcareous tufas. They have no taste, and but little smell.

The result of the analysis seems to prove this substance to be a kind of resin, and that it is improperly termed *Palm-wax*. At least, he observes, the *Cera de Palma*, as obtained from *Ceroxylon Andicola*, does not contain wax, but that in order to render it fit for the manufacture of candles, it is necessary to add either animal fat or vegetable wax.

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* In the *Systema Algarum* it is called *Protococcus nivalis*.—Ed.

On the Native Country of the ANONA SQUAMOSA (Custard Apple). By M. Auguste de St Hilaire.

The uncertainty we are in regarding the native country of most plants cultivated in domestic economy, is well known. One of the most effectual means of removing this uncertainty, is to compare the names by which these plants are known in the different countries where they are at present cultivated, and, by tracing these names, as they have accompanied the plants from country to country, at length endeavour to ascertain the primitive appellation. It is in this manner that M. A. de St Hilaire has discovered the country of the *Maize.*

The *Anona squamosa* is known by various popular names in the French colonies; but though mentioned by all writers as cultivated in the East and West Indies, no one has ever recorded it to have been found in a wild state.

In Brazil, though a great number of other species of *Anona* are naturally produced, yet the *A. squamosa* is there considered as an exotic, and bears a name taken from the form of its fruit, which is not applied to any of the other species with fruit of a similar description. The appellation is therefore supposed to have been introduced along with the plant. It is in reality ascertained that this name *(ata)* is a modification of the words *attoa* and *atis*, names of oriental extraction, by which the same plant is known in Asia. The Portugueze conveyed the *Anona squamosa* from their Indian to their American possessions, and preserved the Indian name with little variation. M. Auguste de St Hilaire concludes some additional details, with stating his opinion, that the plant in question originated in Asia.—*Nouv. Bull. des Sciences Soc. Philomath.*

On the origin of the MANIOC. By M. Moureau de Jonnes.

Every one has heard of the Manioc (*Jatropha manioc*, L.) a shrub from whose roots, after a poisonous juice has been extracted, is obtained a wholesome and nutritive *fecula*, called *Cassava.* This is the principal food of the inhabitants of the warmer parts of America, and of the Negroes of the European colonies in the same part of the world. Raynal thought that it was originally a native of Africa, and that it was carried to the Antilles along with the Negroes, in order to supply them with sustenance. "Les sauvages, qui offrirent à nos premiers navigateurs des bananes, des ignames, des patates, ne leur présentèrent point de manioc." M. Moureau de Jonnès has proved the contrary, by contemporary witnesses; that they did not offer "bananes," but a root, which, under the name of *inca*, was not different from the manioc, and its fecula, under the name of *cassabi* or *cassava*, as at the present day. It was the Portugueze who brought the manioc into Africa, along with the maize. M. de Jonnès has traced with great care the origin and history of the dispersion of this useful vegetable. Columbus, Drake, and Newport met with it in the 15th and 16th centuries among the savages of the various Antilles; Americus Vesputius found it the ordinary diet in Guiana; Bartidas in the province of St Martha; Cabral and Pigafetta in Brazil. It is singular, however, that it was unknown in North America, and in all the provinces situated on the South Sea: this happened from the name *inca* having been transferred to the *Arum virginicum*, which was believed to be the manioc cultivated by the inhabitants of Florida.—*Bull. des Sciences Nat.* Aug. 1825.

An Account of the HEPATICÆ of the Island of Java. By Drs Reinwardt, Blume, and Nees ab Esenbeck.—Acad. Nat. Cur. vol. xii. 1825.

In this truly valuable monograph, all the known species of *Hepaticæ* in Java are mentioned, and upwards of 50 new ones described in a masterly

manner. At the close of an analytical introduction, where the species are considered in regard to their geographical relations, the learned authors have come to the following results, which we shall give in the only extract we can afford to make:

"Numerus Hepaticarum, in ista insula nascentium, cum omnium plantarum cognitarum numero comparatus, est = 62 : 56000 = 1 : 903,23.

"Relatus ad cryptogamicarum plantarum summam, est = 62 : 8000 = 1 : 129,03 vel = 62 : 9000 = 1 : 145,16.

"Cum Lichenibus comparatus, = 62 : 1000 = 1 : 16,13.

"Cum Muscis,.....

"Cum Filicibus, = 62 : 1300 = 1 : 20,97.

"Cum Filicibus tropicis orbis veteris, = 62 : 300 = 1 : 4,84; i. e. fere $\frac{1}{5}$, ut itaque si Filicum, in Java insula provenientium, numerum dimidium esse ponas omnium, quæ ad usque hoc tempus inter tropicos orbis veteris inventæ sint, proportionem habebis ad $\frac{1}{2}$ quam proxime accedentem (1 : 2,42)."

It is greatly to be regretted, that, in so valuable a paper, figures of the new species should not have been given. We trust that our authors may be induced, at some future period, to publish their labours on the Musci and Hepaticæ of Java in a separate form, accompanied with plates, without which the utility of such investigations is greatly circumscribed.

Microscopical Researches on the POLLEN, and Observations on the GENERATION OF PLANTS. By J. B. A. GUILLEMIN. (Read before the Academy of Sciences, March 21. 1825.)

The author of this ingenious essay, which has been obligingly communicated to us, has been enabled, by means of the achromatic microscope, to establish some curious facts relative to the nature of the pollen. He has found that the kinds of pollen may be divided into two great classes,—those that are glutinous, and those that are not; and he is of opinion, that the pollen may contribute to decide many doubts regarding the situation of plants in natural families. M. Guillemin has examined the pollen of the COMPOSITÆ, MALVACEÆ, CONVOLVULACEÆ, CUCURBITACEÆ, AMARYLLIDEÆ, ONAGRARIÆ, DIPSACEÆ, LEGUMINOSÆ, SOLANEÆ, SCROPHULARINÆ, GENTIANEÆ, EUPHORBIACEÆ, &c. The article is accompanied by a coloured plate, in which the pollen of 14 species is represented.

ART. XXXVII.—*BOTANICAL INTELLIGENCE.*

NEW STATIONS FOR RARE PLANTS.

Mr David Bishop, a practical gardener and botanist of great merit, has discovered *Pyrola uniflora* and *Asplenium alternifolium* in Perthshire. The former had for some years been considered extinct in Great Britain. The latter had not been seen since the first discovery of it near Kelso by Mr Dickson. Both these plants may be regarded as among the very rarest of our island.

Ledum palustre and Papaver nudicaule.—Our botanical readers will be not a little surprised to learn, that these plants, hitherto considered as peculiar almost to the Arctic Regions, now fall to be added to the British Flora. The credit of their discovery is due to Sir Charles Giesecké, who, in examining the mineralogy of the numerous small islands on the west coast of Ireland, was delighted to meet with two old vegetable friends whose acquaintance he had made in Greenland, growing on the high hills of the remote island of Achlin; the *Ledum palustre* in quantities together, in elevated marshy grounds; the *Papaver nudicale* scattered in single plants, among rocky glens in the hills.—*Edin. Phil. Journ.*

CRYPTOGAMIC PLANTS NEW TO THE SCOTTISH FLORA.

Dr Greville has recently collected the following plants in the neighbourhood of Edinburgh. *Sphæria miliaria*, Fr.; *S. quaternata*, Pers.; *S. angulata*, Fr.; *S. verrucæformis*, Ehrh.; *S. leiphæmia*, Fr.; *S. Sorbi*, Schmidt; *S. salicina*, Pers.; *S. coryli*, Batsch; *S. tubæformis*, Tode; *S. pinastri*, D. C.; *S. Graminis*, Pers.; *S. Junci*, Fr.; *S. nucula*, Fr.; *Stictis versicolor*, Fr.; *Melanconium betulinum*, Kunze; *Hysterium degenerans*, Fr.; *Phacidium Pini*, Fr.; *Leptostroma caricinum*, Fr.; *L. Spiræa*, Fr.; *Rhytisma Urticæ*, Fr.; *Ectostroma Iridis*, Fr.; *E. Lauri*, Fr.; *Phleibia radiata*, Fr.; *Peziza badia*, Pers.; *P. nervisequa*, Pers.; *Arscyria incarnata*, Pers; *Tubercularia discoidea*, Pers.; *Periconia byssoides*, Pers.

RARE PLANTS IN THE EDINBURGH ROYAL BOTANIC GARDEN.

The following rare plants flowered in this garden in the months of September, October, and November 1825; *Acacia Lophantha*, *Amaryllis aurea*, *Banksia ericifolia*, *Bignonia grandifolia*, *Camellia oleifera*, *Columnea hirsuta*, *Cunonia capensis*, *Cyathodes abietina*, *Epidendrum umbellatum*, *Eranthemum variabile*, *Fruchsia arborescens*, *Gonolobus diadematus*, *Hemimeris peduncularis*, *Ixora arborescens*, *Jasminum paniculatum*, *Lechenaultia formosa*, *Liparia vestita*, *Lobelia gracilis*, *Ornithidium reflexum*, *Rhus vernix*, *Thunbergia capensis*, *Th. coccinea*, *Tulbagia alliacea*, *Vallisneria spiralis*.—Graham in *Edin. Phil. Journ.*

LUMINOUS APPEARANCE IN MINES.

The following notice on the luminosity of the *Rhizomorpha*, is recorded by the Councillor of Mines, Erdmann, in the 1st Number of the 14th volume of Schweigger's Journal. The appearances mentioned were seen on visiting one of the coal mines near Dresden. "I saw the luminous plants here in wonderful beauty; the impression produced by this spectacle I shall never forget. It appeared, on descending into the mine, as if we were entering an enchanted castle; the abundance of these plants was so great, that the roofs, walls, and pillars, were entirely covered with them, and the beautiful light they cast around almost dazzled the eye. The light they give out is like faint moonshine, so that two persons near to each other could readily distinguish the outline of their bodies. The light appears to be most considerable when the temperature of the mines is comparatively high."—*Edin. Phil. Journ.*

ROSES GRAFTED ON OAKS.

M. Bomowsky has grafted or budded *Rosa centifolia*, *bicolor*, *lutea*, *semperflorens*, and *alba altissima*, on the young shoots of oaks, planted in pots, and placed in a greenhouse. *Rosa semperflorens* flowered the same year; the others grew, but did not flower. Only one sort died. M. Bomowsky does not know whether they will last many years or not, but he recollects other anomalies of the same kind.—*Bull. Univers.* Aug. 1825, quoted from the Gard. Mag.

VI. MATERIA MEDICA.

ART. XXXVIII.—*Evidence that Morphia or Morphium was known to the Older Physicians under the name of Magisterium Opii.* In a letter to the Editors, from William Donaldson, Esq. Stonehaven, Surgeon, Royal Navy.

GENTLEMEN,

If you think the following notice worth insertion in your Journal, it is much at your service. It will go to confirm that saying of the wisest of men,

—" That there is nothing new under the sun." I find that the substance at present called Morphia, or Morphium, was known to the older physicians under the name of " Magisterium Opii ;" at least it is mentioned in the " Dissertationes de Pharmacia" of Daniel Ludwig, physician to the Duke of Saxe-Gotha, the second edition of whose work is dated in 1688. He does not, by any means, seem to claim the merit of a discoverer. He dissolved the opium in an acid, and then precipitated the morphium from it by saturating the solution with an alkali. He collected the precipitate, and thinks that the remaining liquid was not to be despised, as it was " alterans et figens,' (licet superstans liquor alterans et figens, haud adeo sit contemnendus). He does not seem, indeed, to have been aware of its alkaline nature ; at least, I cannot find any thing to lead me to suppose that he was so. It is by no means my wish to detract any thing from the merits of the French chemists, whose industry and zeal I think deserving of every praise ; but we should, at the same time, do justice to those who have gone before us.

ART. XXXIX.—*Application of the Chloruret of Lime to judiciary and common professional purposes.*

The power of chloruret of lime, as a disinfecting agent, in cases of necrotomical investigation, is so well established in France, that we look daily to the occurrence of some event in this country to form a basis on which its use may become general, not merely for judiciary, but also for common professional purposes. It would appear to be of sufficient facility in the preparation to enable medical practitioners to avail themselves of it with great ease, almost under any circumstances. It is simply a suspension of lime in water, saturated with clorine, and is employed in the proportion of about an ounce to the gallon of water ; it has been repeatedly employed in bodies highly putrified with the greatest advantage.

Although the knowledge of its efficacy has been published in our Jounals and in some of our medico-legal books, for some time, it is not long since a Coroner's Jury separated, without coming to a verdict, respecting the death of an individual who had been poisoned, because *the undertaker* declared it was dangerous, impracticable, and useless, to view the body. Dangerous (four days only after death) because it was far gone in putrefaction ;—impracticable, because it could not be got at, as the coffin was *screwed down !!*—and useless, because, if they did look at it, it would be impossible, on account of the advanced state of putrefaction, *even to distinguish the sex.* The Jury was, of course, very happy to be alarmed, and separated (as we have said) without coming to any decision. Ergo, the coroner could issue no warrant for interment, and no cleryman would, of course, inter without it. In this country we are too glad of a frivolous pretence to avoid the performance of such duties—" They manage these things better in France."

A case is reported in the *Revue Medicale* for December 1825, where a retained placenta putrefied within the uterus, and gave rise to very unpleasant symptoms. M. Deslandes threw up injections, composed of chloruret of lime and decoction of marshmallow, in the proportion of a drachm to the pint. The odour, which had been fetid in the extreme, ceased almost entirely on the first application ; and was completely dissipated by the second ; after which, the acute pains which had been experienced were also relieved. The placenta (destroyed by putrefaction) was not completely expelled till eighteen days after the birth of the child ; but during its separation, the putrefactive smell did not return.

It is presumed, that this application may be of advantage in various uterine affections, particularly the carcinomatous.

VII. LECTURES.

ART. XL.—*Dr Gordon Smith's Lectures at the Royal Institution on State Medicine, commonly called Medical Jurisprudence.*

WE are happy to hear, that lectures, in London, on this important subject, are now taught; and we are acquainted with no one who is so eminently qualified for this task as Dr Smith. It is stated, that "the subject of these lectures is the application of the various sciences that constitute medicine to the important state purposes of the administration of justice, and the conservation of the public health." We subscribe, therefore, to the opinion, that a course of lectures, of this kind, is of particular interest to all individuals who are more or less connected with the legislation and judicature of our country; and that a knowledge of this science ought to form a part of the qualifications of the coroner, and is inseparably connected with the duty of the medical practitioner.

The first division of Dr Smith's lectures includes the Duties of the Forum; Judiciary, or Forensic Medicine. Under this head he includes, in section 1. Sudden Death, under mysterious and unusual circumstances. This again leads into an inquiry into the states liable to be mistaken for death—the distinction of cases of an accidental or natural description, from those of a violent or criminal complexion, in the absence of historical evidence, with the juridical and medical duties required on such occasions.

Under the head Death by Violence, he comprehends, 1*st*, Homicide, which may occur by poisoning, suffocation, or wounds, bruises, and mechanical violence; 2*d*, Suicide; 3*d*, Prolicide, or the destruction of offspring,—comprehending Fœticide and Infanticide; 4*th*, Survivorship, or the discrimination of the longest liver, where two or more persons have perished from a common or simultaneous cause,—a question sometimes of the greatest consequence in the succession of inheritance.

In a second section, he treats of violence, not involving the issue of death, as by maiming or mutilating—by surgical operations, (these he notices as to their propriety and warrantability under various circumstances, and comprehending the legal responsibility of surgeons as to the issue),—by punishment, as in military cases—and, lastly, he considers injuries done to the female sex.

In a third section, he discusses the disqualifications for social functions and official situations, as, *first*, for general purposes, that is, where there are moral and intellectual defects and peculiarities, or where individuals are deaf and dumb; *secondly*, for marriage; *thirdly*, for military service; *fourthly*, for holy orders; and, *fifthly*, he notices where impostures, connected with the foregoing and other cases, exist.

Under a fourth section, the lecturer discusses such miscellaneous questions as human gestation,—its verification, term, and fallacies; monsters,—particularly the case of sexual ambiguity; age and identity; life insurance; hereditary diseases and peculiarities, and the economy of medical evidence.

The second great division of the lectures, comprehend the Duties of the Senate; or, Medical Police. In this department, the following subjects are discussed: 1*st*, Ages, or characteristics and import of the several gradations in the period of human life, comprehending many circumstances relative to physical education and economy; 2*d*, Marriage and population; 3*d*, Manners,—their influence on health; 4*th*, Air, food and drink,—including the medical consideration of nuisances, adulterations, culinary poisons, public cleanliness, regulations for markets, slaughter houses, burial grounds, &c. &c.; 5*th*, Topography,—comprehending climate, soil, meteorology, productions, &c. of countries and particular situations; 6*th*, Clothing and dwelling places; 7*th*, Public buildings for numerous inmates,—manufactories, barracks, ships, prisons, hospitals, &c. as regards ventilation, discipline, labour, &c.; 8*th*, The employment and management of the poor, with a view to preserve them from disease; 9*th*, Contagious, epidemic, and endemic diseases, with the precautionary measures against them, quarantine, smallpox, hydrophobia, &c.; 10*th*, Dangers in certain situations, as in mines, from lightning, &c.; 11*th*, Medical

economy and ethics,—medical education—great importance of anatomy, and necessity of interference on the part of Government—dangerous indifference as to the qualifications of accoucheurs—necessity of studying state medicine—duties of medical men—propriety of appointing medical men to the office of coroner—professional remuneration, &c. &c.

OBITUARY.

Died, at his residence, Richmond, Surry, on the 10th of January, at a very advanced age, Sir David Dundas, Baronet, serjeant-surgeon to the late and present king; and many years a member of the Court of Examiners of the Royal College of Surgeons in London.

At his house, Charlotte Street, Fitzroy Square, January 9th, in the sixty-fourth year of his age, Edward Fryer, M. D. physician in ordinary to the Duke of Sussex, and consulting physician to the Western Dispensary.

BOOKS RECEIVED FOR REVIEW.

Kennedy on the Diseases of Children; Reid's Introduction to Chemistry; Black on the Capillary Circulation; Tiedemann on the Fetal Brain; Bennet's Chart of Poisons; Magendie's Physiology, translated by Milligan; Milligan's Celsi Medicina cum Notis; Dawson's Physiological Practice of Physic; Fosbroke's Practical Observations on Pathological Relations of the Kidneys to the Brain, Mucous Membranes, and Liver; Fosbroke's Topographical Account of Cheltenham; Harveius de motu Sanguinis, annotante T. Hingston, M. D.; Treatise on the Diseases of the Eye, by George Frick, M. D. and edited by George Wellbank, surgeon, &c. &c.

QUARTERLY LIST OF NEW PUBLICATIONS.

LONDON.

A Review of the Different Modern Operations Performed on the Eyes. By William Cleoburey. 8vo, 10s. 6d.

A Practical Treatise on the Arterial System. By T. Turner. 8vo, 8s.

The Anatomy of the Fœtal Brain; with a Comparative Exposition of its Structure in Animals. By F. Tiedemann. Translated from the French of A. J. L. Jourdan, by W. Bennett, M. D. 8vo, 12s.

Researches into the Nature and Treatment of Dropsy in the Brain, Chest, Abdomen, Ovarium, and Skin. By J. Ayre, M. D. 8vo, 8s.

Part I. of a Series of Myographical Plates on a peculiar construction, containing the Muscles of the Anterior and Posterior Parts of the Thigh, Leg, and Foot. By E. W. Tuson. Folio, 12s. Plain; 18s. Coloured.

Sketches of the most Prevalent Diseases of India, comprising a Treatise on the Epidemic Cholera of the East. 8vo, 18s.

Original Experiments and Practical Observations on Hydrophobia and Canine Madness. By R. White, Esq. Surgeon, of Brighton. 8vo, 7s. 6d.

A Letter to Sir Astley Cooper, Bart., F. R. S., Surgeon to the King, &c. &c. on certain proceedings connected with the Establishment of an Anatomical and Surgical School at Guy's Hospital. By J. H. Green, F. R. S. 3s.

Johnson's Further Observations on the Leech. 8vo, 7s. 6d.

An Essay on the Application of Lunar Caustic, in the Cure of Certain Wounds and Ulcers. By J. Higginbottom. 8vo, 6s. 6d.

Medical Essays. By Marshall Hall, M. D. 8vo, 4s.

Middleton on Consumption. 8vo, 4s.

Botanical Sketches. 8vo, 15s.

Numerous Cases, Illustrative of the Efficacy of Hydrocyanic, or Prussic Acid, in Affections of the Stomach, &c. By J. Elliotson, M. D. 1 vol. 8vo, 5s. 6d.

Practical Observations on Distortions of the Spine, Chest, and Limbs. By W. T. Ward. F. L. S. 8vo, 7s.

Observations on Gout, Critical and Pathological, with Remarks on the Use of Colchicum, and on Diet. By A. Rennie.

EDINBURGH.

A Treatise on the Effects and Properties of Cold, with a Sketch, Historical and Medical, of the Russian Campaign. By M. Beaupré, M. D., Regimental Surgeon in the French Service. Translated by John Clendinning, A. M., with an Appendix by the Translator. 8vo, 10s. 6d.

A Cornelii Celsi de Medicina Libri viii. Ex recens, Leonardi Targæ. Concinnavit Edwardus Milligan, M. D. &c. 1 vol. 8vo, 16s.

Lizars's Anatomical Plates; with Descriptive Letter Press. Part IX. 10s. 6d. Plain; L 1, 1s. Coloured.

Corrections to be made in our last Number.

Owing to some incorrect instructions which were published regarding the time that articles intended for the last Number were required to be sent to press, the Editors regret that several papers arrived so late for insertion, that sufficient justice could not be done to the corrections of the press.

The following errata are the only ones which they think of sufficient importance to notice, some of which only occurred in a few of the earlier impressions, which were too hastily printed off in order to arrive in time at London.

P. 183, l. 32, *for* 123 *read* 120 three
182, 36, *for* ℥xx. *read* min.xx.
97, 9, *for* Mr Asler, *read* Mr Osler,
96, 28, *for* the widest opposition *read* the closest apposition

As this last mistake arose from the circumstance of Dr Gibbon's communication on a case of spontaneous dislocation (see page 96.) being abstracted from a private letter, a copy of it only being placed in the printer's hands, we conceive it our duty to annex this gentleman's more full explanation of his sentiments.

"I meant to impress upon the minds of practitioners in surgery, the possibility of the head of the thighbone's escaping from the acetabulum, after a dislocation, even where all possible care was taken to prevent this misfortune, by using the ordinary precautions of keeping the thighs and legs in the *closest* apposition,—not the *widest*, as stated in the Journal.

"In the two first instances, after reducing the dislocation, the legs and thighs were *bound together* secundum artem, or according to the ordinary rules in surgery. After the third reduction, which was effected with more difficulty than we looked for, it was determined to keep the legs widely apart, in order that the head of the femur might be directly opposed to the centre of the cup, and thereby be prevented gliding, as it were, very gradually over the broken down edge thereof.

"I have just learned that the man is quite well, and competent to moderate labour."

NOTICE TO CORRESPONDENTS.

The excellent review on the Journal de Pharmacie, &c. we are sorry came too late for the press. It will be inserted in our next Number.

Some other communications are necessarily delayed.

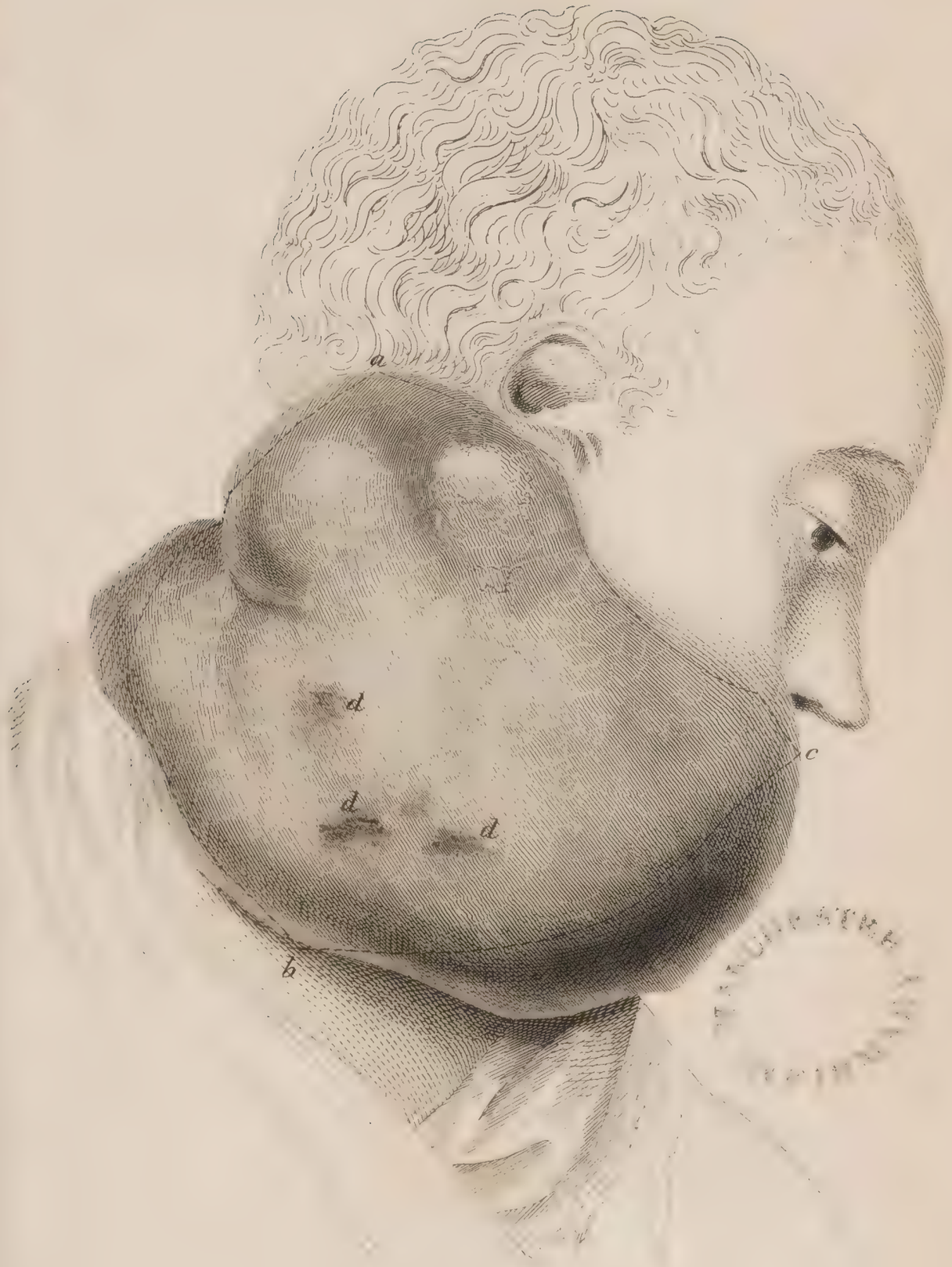

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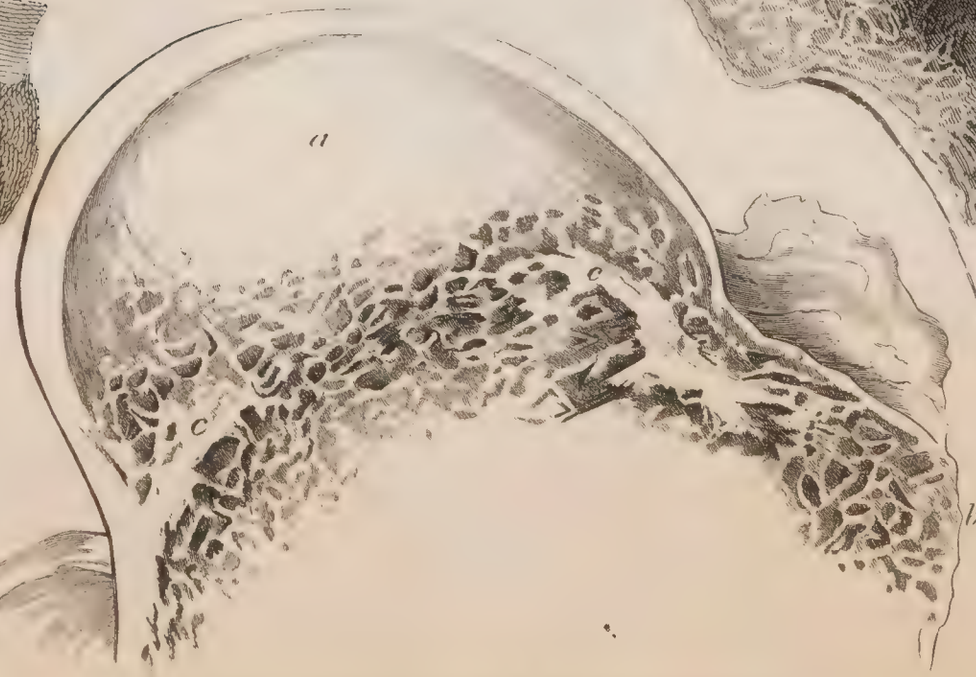
Fig. I.

Fig. II.



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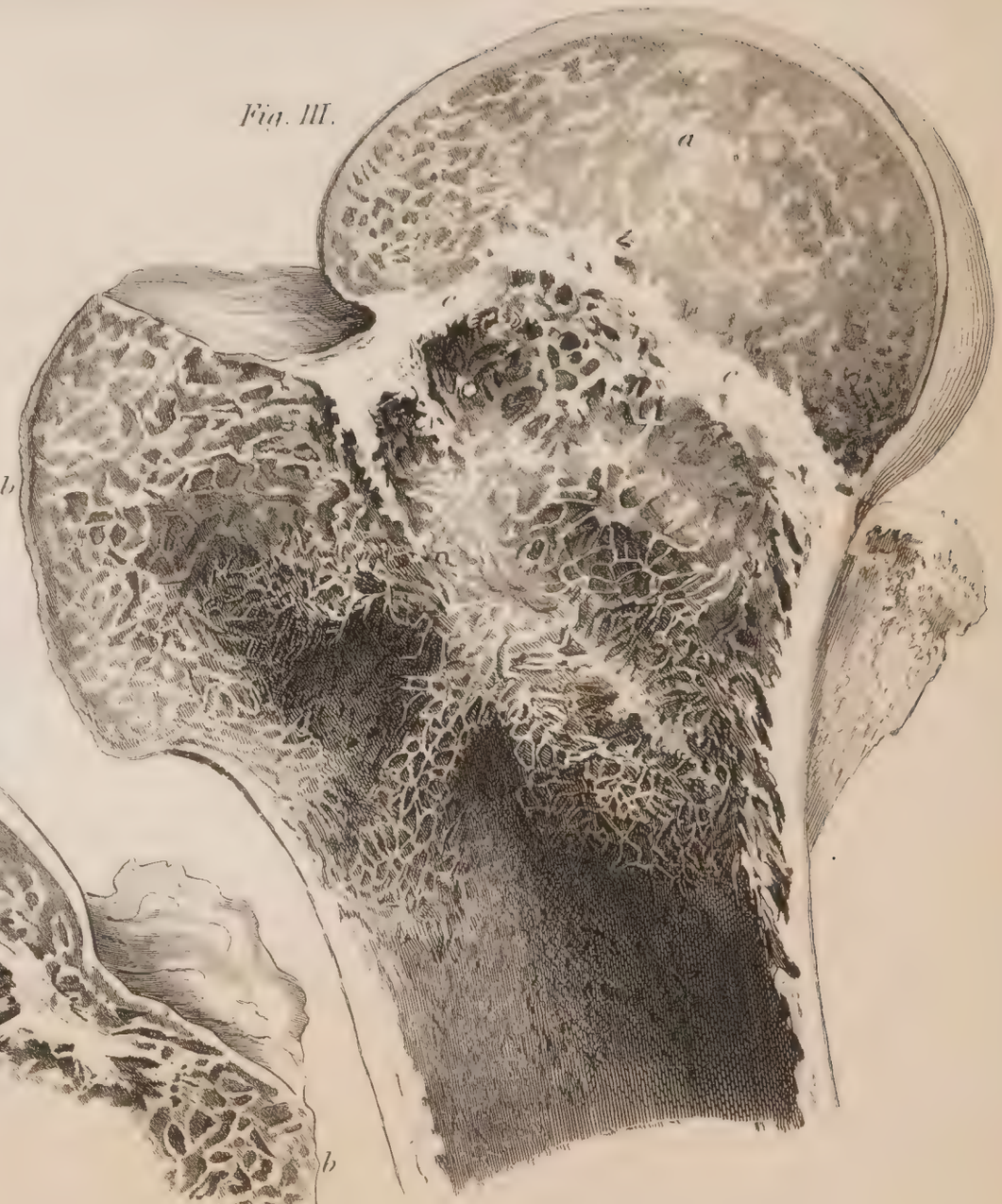

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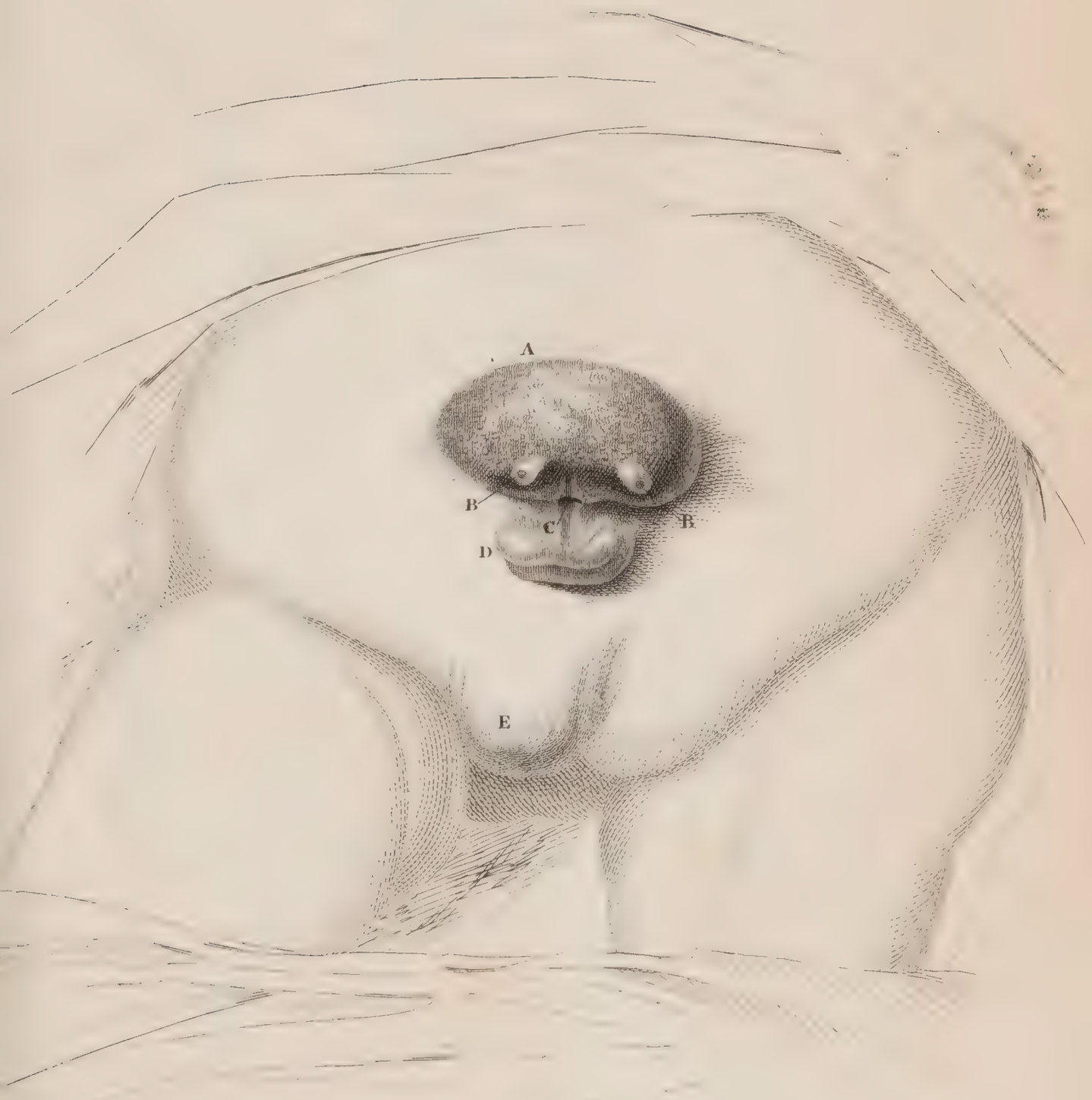

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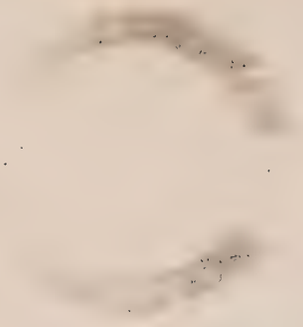

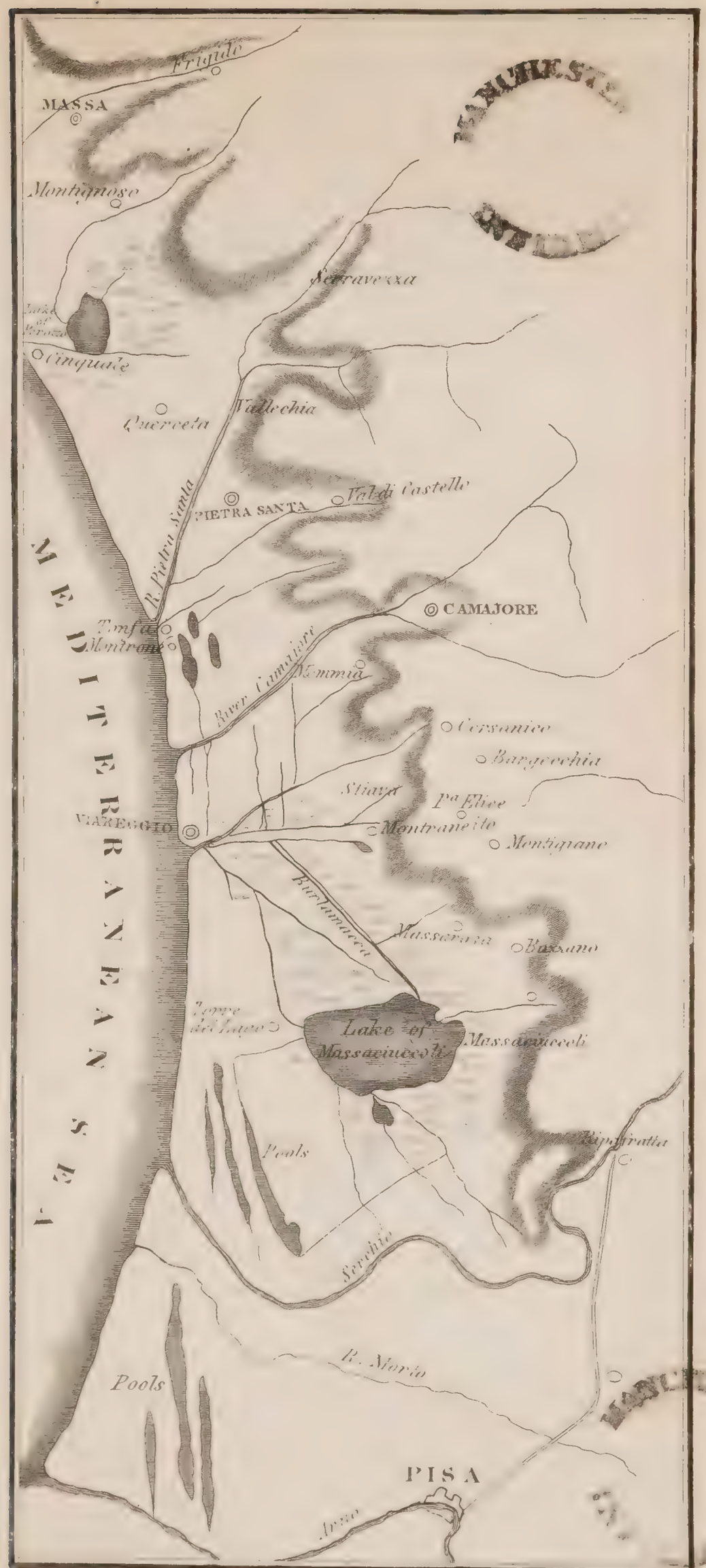

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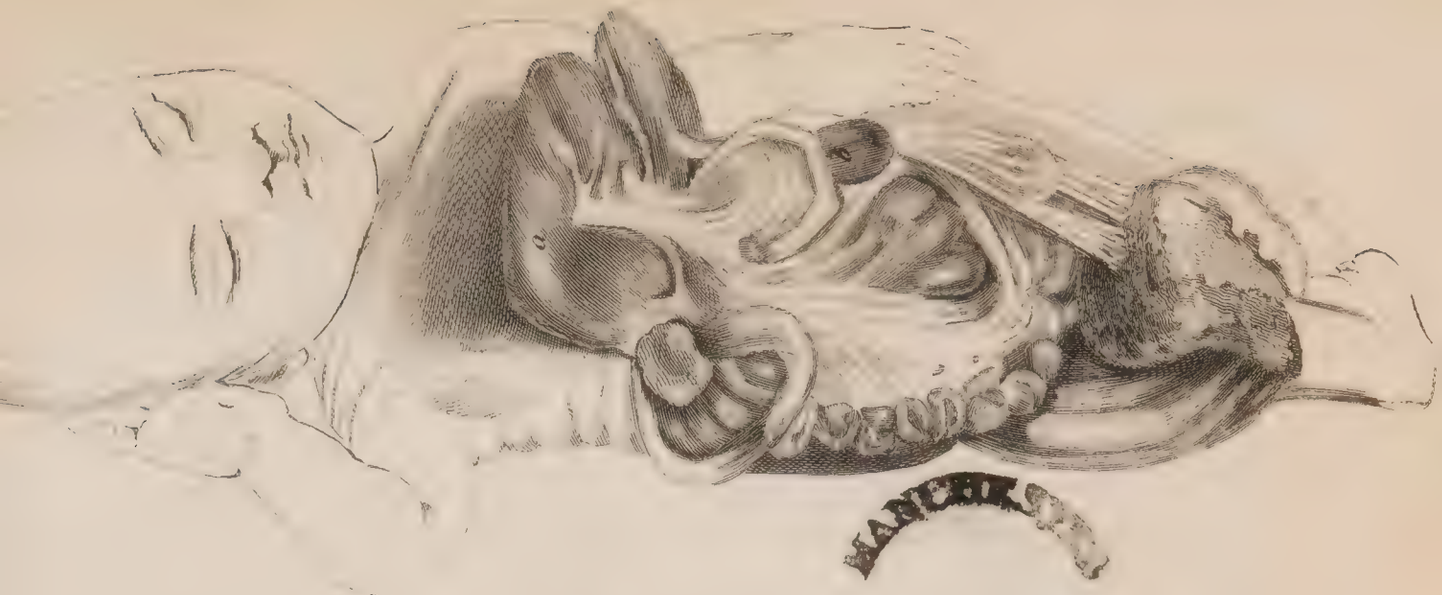
Fig. 3.



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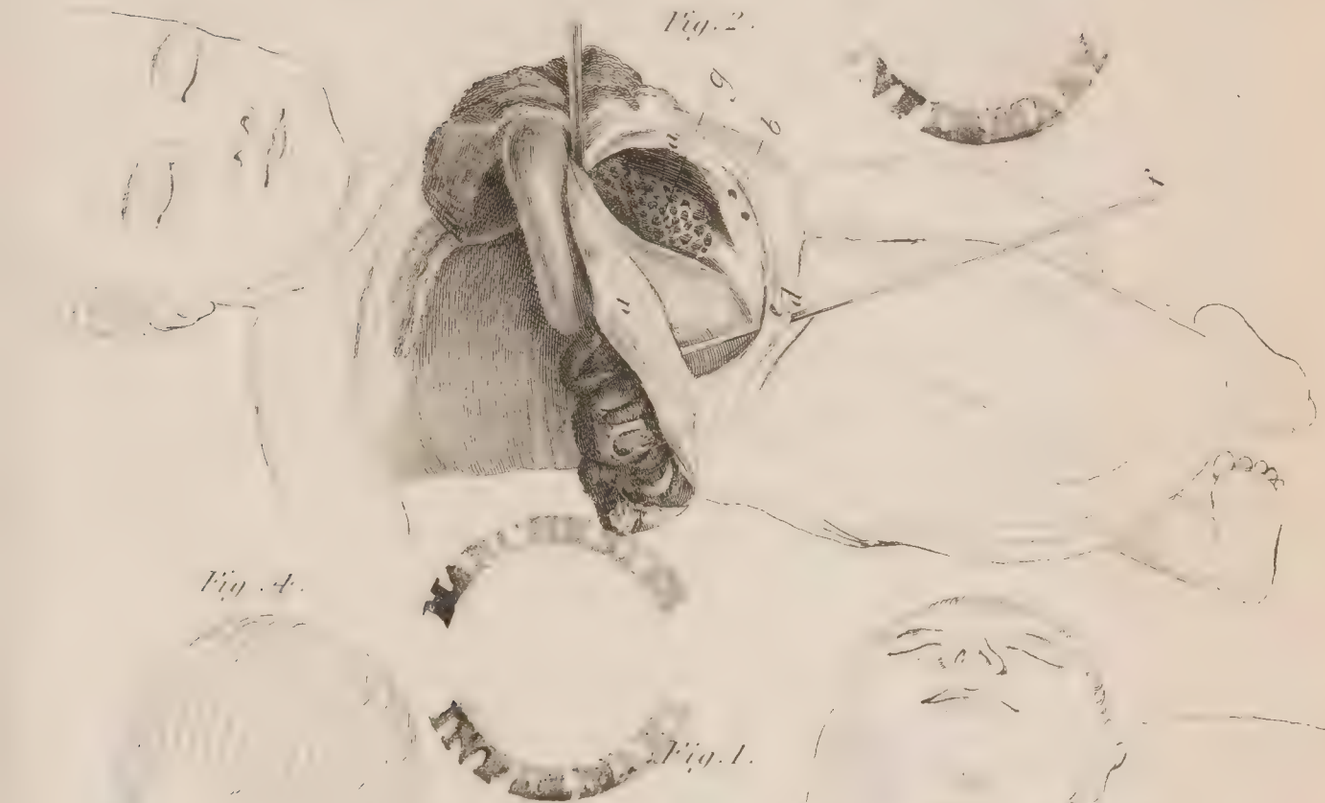

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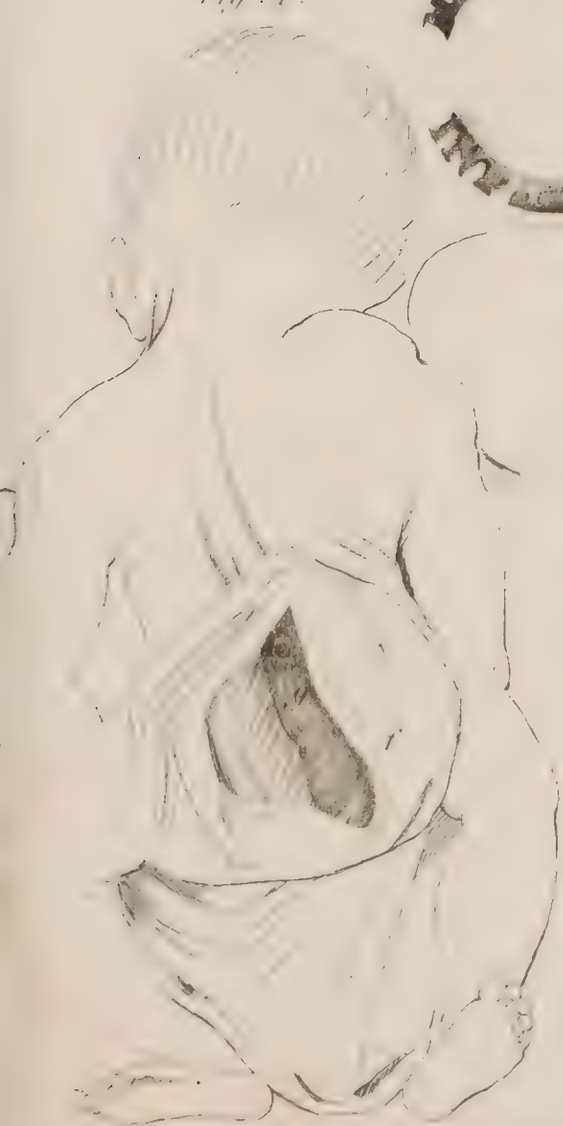

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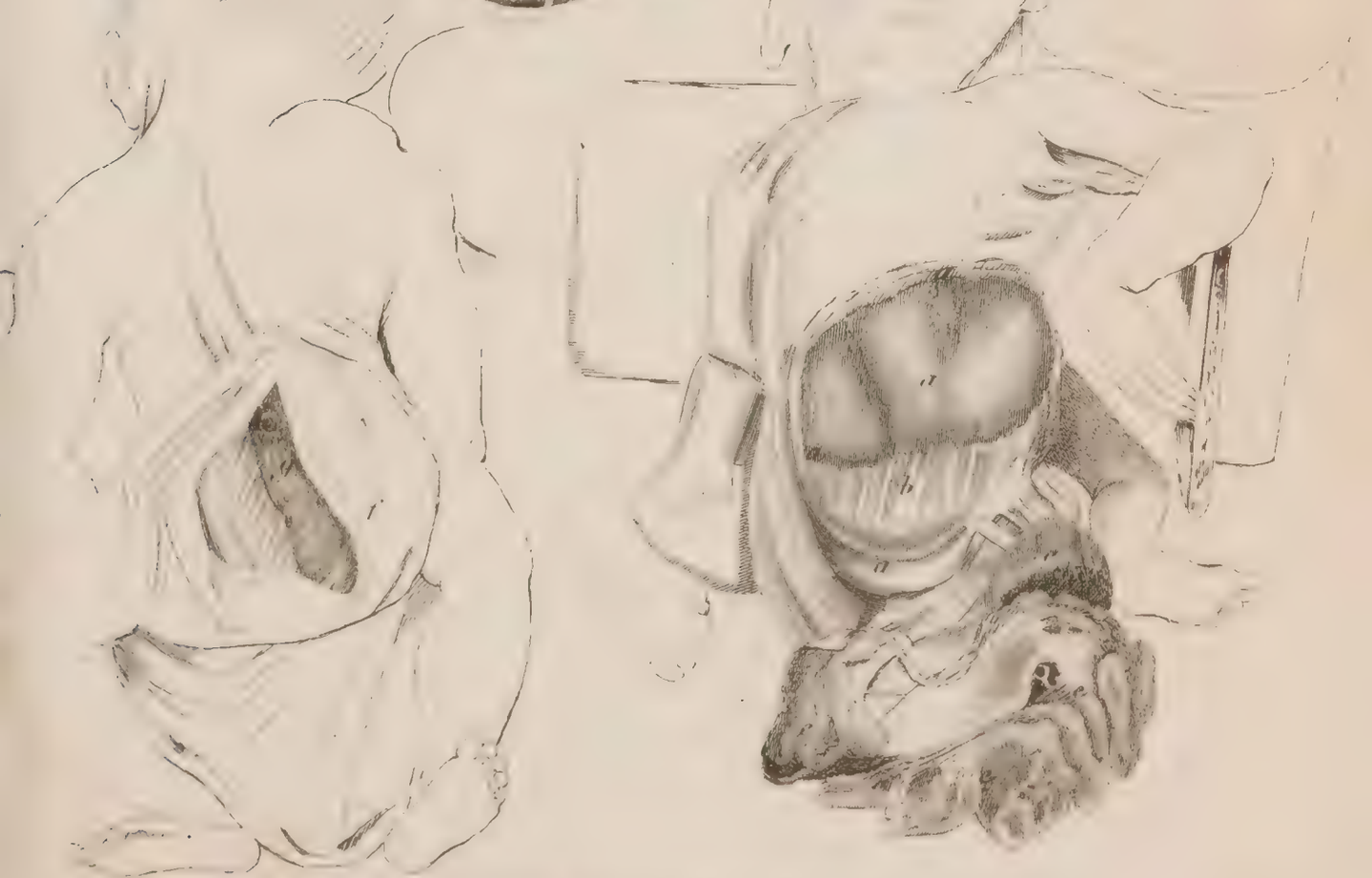

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